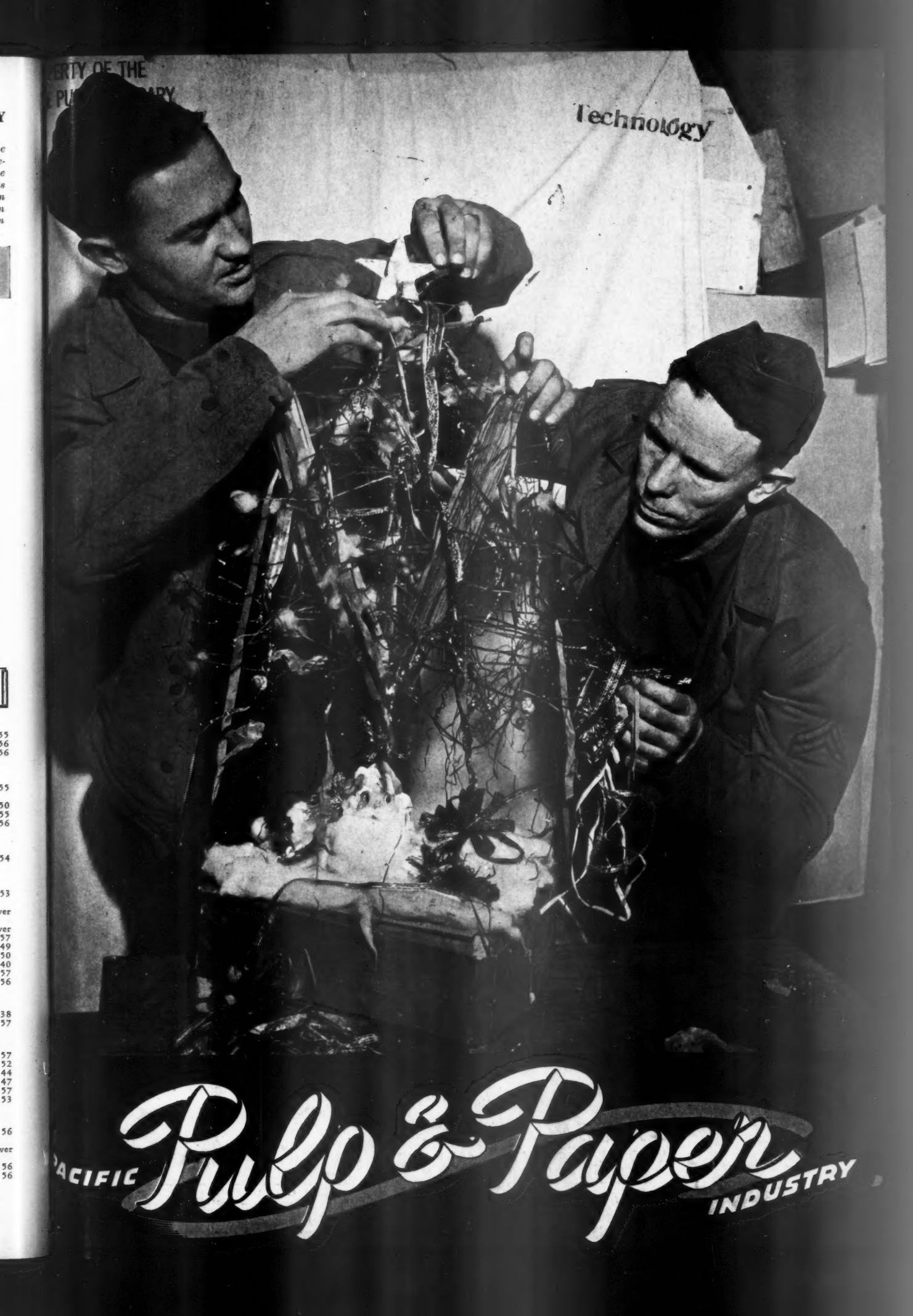
Technology
PACIFIC
Pulp & Paper
INDUSTRY

As our armed forces advance island after island in the South Pacific, on each of these stepping stones to Tokio, they encounter an enemy more dangerous than the treacherous Japs.

It is water-borne disease. In past wars this killer has caused more casualties than the most deadly weapons devised by man!

Today, chlorine and its compounds help to protect our fighting men against many forms of this menace. And for this important purpose, and other vital uses, Penn Salt supplies the army and navy with this important chemical.

In camps, during troop transportation, and in the field, chlorine sanitizes water for drinking and bathing. Its compounds serve bactericidal uses in field and base hospitals—in laundries, for bleaching and sanitizing purposes—in footbaths as a safeguard against common fungus infections.

These needs take a great deal of the Penn Salt output of chlorine and chlorine compounds. However, our concentration on this urgent wartime service has provided us with a fund of experience and increased facilities which will be turned to serving our peacetime customers even more satisfactorily when the war is won.

Penn Salt manufactures

Liquid Chlorine

for the Paper and Pulp Industry

Also

Caustic Soda • Corrosion-Proof Cements
Alum • Sodium Aluminate
Bleaching Powder • Anhydrous and
Aqua Ammonia • Acids • Perchloron*

*Trade-mark Reg. U. S. Pat. Off.

PENNSYLVANIA SALT
MANUFACTURING CO. OF WASHINGTON
Chemicals
TACOMA, WASHINGTON

Pacific Pulp & Paper Industry is published once a month, at 71 Columbia St., Seattle, Wash. Subscription: U. S., $4.00; Canada, $4.50; other countries, $5.00. Entered as second class matter May 20, 1927, at the Postoffice at Seattle, under the Act of March 3, 1879. Copyright, 1943, by Miller Freeman Publications.

Christmas on the Fighting Fronts

—Photo By U. S. Army Signal Corps

THIS Christmas finds the Axis on the defensive and victory at last in sight, thanks in large measure to the ingenuity of Americans, Canadians and their allies. OUR COVER PICTURE shows the ingenuity of United States soldiers. Not in an important way, perhaps, unless you are very sentimental about Christmas. But, certainly, in a characteristic way. Old cable and discarded telephone wire were used to make the Christmas tree in the cover picture for an army hospital in Iceland. It is being decorated with used Christmas wrapping.

—Photo By U. S. Army Signal Corps

The picture on the left shows another soldier in Iceland, opening his Christmas package from home. If you want an idea of what Christmas would be without paper, just look over the objects in that picture.

And in the picture above a Panzer Santa at Camp Lee, Virginia, is on Christmas maneuvers in a jeep.

Just as our soldiers have shown ingenuity in keeping the Christmas spirit alive, as well as in fighting a winning war, so has the pulp and paper industry of the United States and Canada shown ingenuity in doing its bit.

It has done so by developing many critically needed products, by producing essential pulp and paper products despite shortages and poorer quality materials and by making or repairing machinery with scraps and substitute materials.

It has done its bit to bring back "peace on earth and good will toward all men."

Season's Greetings to all of our Friends from all of Us

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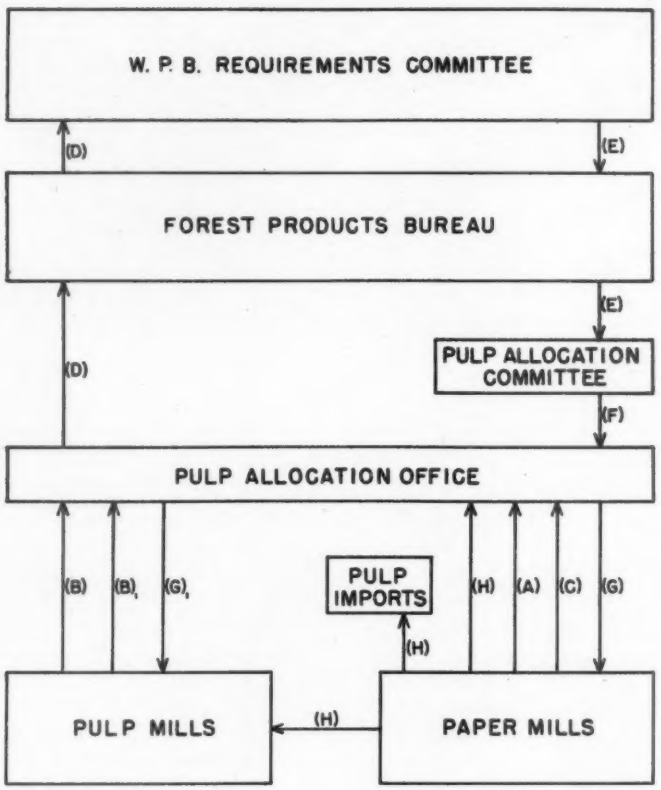
SUBSCRIPTION RATES

United States	$4.00
Canada	$4.50
Other Countries	$5.00
Single Copies	$ .35
Review Number	$1.00

PULP ALLOCATION PROCEDURE
(as of November 12, 1943)



EXPLANATION

(A) Form WPB 2793 - Paper Mill Quarterly Application for Allocation of Pulp
(B) Form WPB 699 - Part I - Quarterly Wood Pulp Mill Report
(B)1 Form WPB 699 - Part II - Monthly Wood Pulp Mill Report
(C) Form WPB 698 - Paper Mill Monthly Pulp Report
(D) Classified Estimates of Pulp Supply and Pulp Demand with Production Recommendations
(E) Production Determination Classified by Paper Grades
(F) Recommended Pulp Allocations to Individual Mills (must conform to E)
(G) Form WPB 2793 - Specific Pulp Allocation to Individual Mills (must conform to E)
(G)1 Form WPB 699 - Part I - Quarterly Authorization of Shipments to be made by Pulp Mills
(H) Form WPB 697 - Pulp Purchase Requests

COMPLETE END USE CONTROL OF WOOD PULP IN THE UNITED STATES THROUGH GOVERNMENTAL DETERMINATION OF THE ESSENTIALITY OF ALL PRODUCTS BEGINS JANUARY 1.

On November 11, DAVID GRAHAM, WPB chief of Pulp Allocation, and L. K. LARSON, of Weyerhaeuser Timber Company, who is spending much of his time in working with Mr. Graham, spent a full day in Washington discussing the new operation with 26 representative members of the pulp and paper industry.

The above chart, prepared by the American Paper & Pulp Association, shows the flow of applications up to the WPB Requirements Committee and the subsequent actions to be taken. This Requirements Committee is the one which in the past has controlled distribution of critical metals and the pulp procedure is similar to the plan in operation for metals. The basic determination which balances demand with supply is made by this committee and is made effective through directives to the Pulp Allocation Committee. The Pulp Allocation Committee in turn recommends the allocation for individual mills to the Pulp Allocation Office. The Pulp Allocation Office makes the actual allotment of pulp to the mills. This allotment must conform to the directive as originally laid down by the Requirements Committee. The forms established for the regular operation of the pulp allocation system are indicated on the chart.

Lebanon, Ore., Mill Leads in War Work

● The Lebanon, Ore., mill of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, has been maintaining an enviable record among all the mills which are employing their machine shops for the manufacture of vitally needed war material. Since June 1, 1942, this comparatively small mill has stood in No. 1 position among all the contributing mills on a quota basis. The quotas are based upon two factors, the number of prime tools which constitute the mill's equipment, and the number of hours allotted on the basis of employe numbers.

The standing represents actual percentage of time put in on war work, in which Lebanon shows the greatest.

Ed Lechband, master mechanic, is in charge of the machine shop program. M. J. Otis is the resident manager.

R. S. Wertheimer, of Longview Fibre Company, as secretary-treasurer of the Pacific Coast Association of Pulp and Paper Manufacturers, receives reports and compiles standings of the 29 participating mills.

November standings showed in the first three places:

1. The Crown Zellerbach Corporation mill at Lebanon.

2. The Hawley Pulp & Paper Company mill at Oregon City, Ore.

3. The Crown Zellerbach Corporation mill at Camas, Wash.

MALCOLM J. OTIS, Resident Manager of Lebanon, Ore., Mill of Crown Zellerbach Corporation. His machine shop crew under ED LECHBAND leads Coast Association in war work.

Prospects for Scandinavian Post-War Competition

By HON. FRED NORMAN, M. C.,
Third Washington District

Growing and alert industries of United States and Canada will have tremendous advantages over hard-hit Scandinavian operators, says United States Congressman in this article written especially for PACIFIC PULP & PAPER INDUSTRY.

COMPETITON from the Scandinavian countries will not, in my opinion, be a strong factor in the pulp and paper picture of the Western Hemisphere in the immediate post-war years if America can capitalize on its present advantages.

The foregoing statement is based partly on confidential data supplied to me by competent authority in the U. S. Government, and also upon talks with men who are handling the war agencies which deal with pulp and paper problems. Because the data furnished me is private, I cannot divulge details, nor quote figures. Much of the word-of-mouth information I have collected also is confidential now, and I cannot violate the ban.

But the general picture drawn by these sources is very encouraging to the American pulp and paper industry insofar as Scandinavian competition right after the war is concerned.

There are two general reasons for my optimism. One is that the pulp and paper industries of Norway, Sweden and Finland are suffering terribly from the war, and will continue to suffer until well after peace comes. The second reason is the confidence I have that the American industry is not only being built up rapidly, but will continue to expand, and will almost day by day be finding new and better uses for its products. In other words, we are going forward while the competitors across the seas are standing still or falling back. If we continue to capitalize on our present advantage, we have little to fear in the immediate post-war years, and probably not much to fear for a long time after the war is over.

"If all the information we have about these countries (meaning the Scandinavian nations) is correct, their competition in the pulp and paper field will not be a big factor right after the war."

That is a direct quotation from a high-ranking official of an American war agency who, while he must remain anonymous here, is unquestionably one of the very best authorities in the country on the subject of world trade in pulp and paper.

War Damage to Be Heavy

● In a general way, the information to which he refers includes the data about Scandinavian ship losses and war strain on the entire pulp economy of the North European nations. By the time the war is over, I believe we will find that the pulp and paper industries of Norway and Finland, and even of Sweden, will have suffered material damage that will take years to repair. The Germans, if and as they are forced to retreat, will wreck every plant in sight. What they may not be able to devastate will very probably fall prey, of necessity, to the invading Allies; the very process of invasion will inevitably result in great damage, no matter what precautions may be taken. War is wasteful, the most pitiless waster of human and natural resources that exists, and the pulp and paper plants in the path of this war will pay the price, come what may.

Destruction of their plants through the physical processes of war is not the only painful experience through which the Scandinavians are going, or will go. War's necessities have required great changes in the whole economic balance of the pulp and paper industries of these countries.

Consider the fact, for instance, that before the war Sweden exported most of its pulp and paper. The United States and the United Kingdom were its biggest customers. The war blockage stopped practically all of this trade. Demands from Germany, and from nations under German hegemony, have helped bolster Sweden's business, but it has failed by far in replacing the export business formerly enjoyed.

HON. FRED NORMAN (Rep., Wash.) of U. S. Congress: Confidential data shown him indicates heavy blows of war are crippling Scandinavian industry.

German demands have especially helped the Swedish mills producing chemical pulp. Mechanical pulp plants fared much worse. Paper and paperboard exports from Sweden have fallen off tremendously. The Swedes, it is true, are running many mills right now, but it is an activity that is closely connected with production of fodder cellulose for cattle feed, and of by-products which promote the output of other synthetics, such as artificial rubber and motor fuel. The cows eat the fodder now, for lack of anything better. But it is hard to picture this as a peacetime profitable product. Even under the press of war, Sweden's mill owners are not happy at the prospect of producing great amounts of pulp simply to furnish the by-products that war requires, such as rubber and fuel. In normal peacetime economy, it is doubtful if such a lopsided production picture can long continue.

There is a possibility—and I don't know how strong this possibility is—that these Swedish mills, instead of returning to the same type of operation as before the war, may continue to work on the new products which

war has forced upon them. The entire industry may be revamped in the light of new discoveries.

But even this does not materially darken the picture so far as the American mills are concerned. No matter how frantic Swedish research may be, American research along the same lines is progressing and will expand.

Chance for Ingenuity

● There are several war years ahead during which American experimentation and invetion and perfecting of processes should be, and will be, continued at an accelerating rate. We can, and I believe we will, compete in the by-products lines with the Scandinavian pulp makers not only right after the war but increasingly as the new Armistice retreats further into history.

Personally, I would like to see the American pulp and paper industry conduct even more experiments, invent even more new uses for pulp, and perfect even more processes in all phases of the business. We have the brains, the raw materials, the equipment in great proportions. We have the markets, and the means of transporting our products to these markets. We should exploit to the very greatest possible degree—right now while the advantages are so plainly ours—every single factor which shows promise of contributing to our continued dominance in the pulp and paper field after the war.

For too long, I believe, we have had the habit of looking to foreign fields for the new processes and the new things. We have not been inclined to rely on our native ingenuity and genius as completely as we have found, in these war years, that we can rely. We all recall when the finest stockings for women were made from Japanese silk. But even before our war requirements deprived our women of American nylon stockings, we had gotten over the idea that we had to depend entirely upon the enemy's silkworms. I venture the guess now that most women actually prefer nylon to Jap silk for their hose. I believe this example shows in a striking way the value of "looking homeward" for the things that will maintain our competitive position, in many lines, when the war is won—not only in our own hemisphere but throughout the world.

In short, we should not count too heavily upon the advantages which the war has given us in the pulp business, and we should not count too heavily on the disadvantages to Scandinavia which the war has forced upon them. We should "be up and doing" more on our own initiative.

Like Sweden, Norway also has suffered from the war's effects on the pulp industry. Exportation to countries other than Germany, or to nations under Nazi control, is practically nil. In looking at Norway's potential post-war export trade, one must consider that the Allied invasion and its resistance by the Germans will inevitably result in the wreckage of many if not all the present Norwegian pulp plants. A glance at the pictures of Nazi wreckage in the parts of Italy which Hitler's armies have evacuated will show fully what the Norwegian pulp industry can expect when the western front is reopened. It will leave Norway with the task of rebuilding practically her whole pulp economy, including much of its physical assets, before she can again cast her eyes westward towards the markets of North and South America. All this time, our own pulp and paper industry, and that of Canada, will be growing.

Norway's pulp industry, like Sweden's, also has been thrown out of balance by the requirements of the Germans, and by the intrinsic needs of a war-torn nation. Pulp plants of Norway, while operating little in comparison with pre-war years, have been turning out fodder cellulose for cattle feed, also. The chemical pulp business especially—since it is these factories which produce the fodder—has been forced into a "top heavy" position. As in our own Pacific Northwest, only to a much greater degree, lack of woods manpower likewise hurts Norway's pulp and paper industry. Other shortages, such as coal and glues, make their picture even blacker right now, and point another finger at the immense difficulty that Norway's industry will face when the time comes for her to re-seek her export markets in the western world.

Situation In Finland

● Finland, which in pre-war years was the second ranking exporter of chemical wood pulp, being outranked only by Sweden, is right now in even worse condition than either Norway or Sweden insofar as pulp production is concerned. Finland lost some pulp capacity when she lost the Russo-Finnish war. Production

SWEDISH MARKETS RESTRICTED

In another recent report on the condition of the Swedish market **Svensk Pappersmasse Tidning** says that as might have been expected, recent war developments have increased the difficulties of the paper, cardboard and carton industries, to achieve the desired turnover—more particularly of exports—for their products. While thus Sweden's trade with the markets inside the blockaded zone has been restricted in several directions, and has ceased in some, the home market has also in some respects been slightly duller.

The fact that trade is restricted, and has in some cases quite stopped, is not, as far as Sweden's exports are concerned, entirely due to lack of interest in buying on the part of our foreign customers, however, but primarily to the clearing situation and to increased difficulties of transport.

It seems to be increasingly difficult to make new sales and to effect deliveries of contracts already made to other markets, e.g., Hungary or such countries, whether this is due to difficulties of transit or not. Transactions on a compensation basis are as a rule getting harder to complete, as the other party finds it difficult to raise suitable compensation goods.

The fine-paper mills have thus been fairly busy, and their products for the home market, such as writing and printing paper, paper serviettes, table cloths and sheets, have been selling very well. The kraft paper mills, too, have been busy.

SWEDISH PULP SALES DECLINE

● The decline in Swedish pulp sales during the first six months of 1943, as compared with the corresponding period of 1942, was attributed to a number of factors, one of which was the inability of many European countries to supply Sweden with commodities in return for pulp. Another reason was that good crops in 1942 cut down the demand for fodder cellulose. A suspension in safe-conduct traffic for nearly four months cut off pulp shipments to Argentina for that period.

Only seven per cent of the available amount of mechanical pulp was sold by Swedish mills during 1942 and in this year's quotas no provisions were made for that type of pulp. As Swedish paper mills cannot absorb the quantities formerly exported, the situation for mechanical-pulp manufacturers is far from satisfactory.

Pulp quotas established in the 1943 Swedish-German trade agreement were placed at 55,000 tons of rayon pulp and 44,000 tons of sulfate for the first six months of this year. Of this reduced quota, Germany bought all the rayon pulp stipulated, but only 75 per cent of the sulfate.

Swedish exports to the Netherlands and Belgium were arranged for in Berlin in February 1943. A total of 18,500,000 Swedish crowns was allotted for Netherlands purchases and 11,600,000 crowns for Belgium purchases for the whole year. These amounts compare with 1942 allotments of 23,000,000 and 11,000,000 crowns, respectively.—**U. S. Dept. of Commerce report in November issue of "Foreign Commerce Weekly."**

in her remaining plants has declined drastically since then. German demands for cellulose for munitions helped retard this decline for a while, but inevitably the factors which contributed to the slow-down in Norway and Sweden also hit the land of the Finns—manpower shortages, lack of coal, transportation difficulties, inflation, heavy taxes, lack of repair and replacements. Finland's pulp and paper industry will not recover overnight from the terrific beating it has suffered during two wars in one decade, the war with Russia and the present World War.

If America's pulp and paper industry can take full advantage of the opportunities which the world conflict, by its nature, has presented, I do not think we need worry overmuch about Scandinavian competition in the years immediately following peace.

Whether the Scandinavians can, in time, again win back their high place in the export field is another question. Personally, I feel that our government should help in every possible way to promote the advantages presently enjoyed by America's pulp and paper business.

By that, I mean I favor a system of tariffs which will help guarantee that this country will maintain, through all the years to come, its present position in relation to foreign competition. I am in favor of tariff protection for our own inudustry, regardless of whatever field competition may come from. As a representative of a congressional district that relies heavily upon the output of its huge forests, including the operations of pulpwood cutting and pulp producing plants, I certainly am a strong believer in tariffs which will protect the workers and the operators of my district, state, region and nation against foreign onslaughts, regardless of their origin.

With the government's help along this line, and by making full use of the advantages which the world conflict has, by its very nature, dumped at our door, I firmly believe our pulp and paper industry can and will survive strongly in the years ahead.

SWEDEN INCREASES RAYON PULP CAPACITY

Swedish trade journals report that while shipments of rayon pulp during 1943 probably will not reach the 1942 level, production capacity is tending to increase due to the continued rebuilding of pulp mills for the production of rayon pulp.

7% Increase in Paperboard Predicted At Annual Association Meeting

● A forecast of a possible seven per cent increase of United States paperboard production in 1943 over 1942, based on weekly averages to date, was made at the Waldorf-Astoria, New York City, November 18-19.

A weekly average tonnage of 146,000 tons indicated a 1943 total of 7,592,000 tons as compared with 7,074,000 tons in 1942, which was the second highest year on record. The all-time high of 8,246,576 tons was set in 1941.

W. Irving Osborne, Jr., president, Cornell Wood Products Co., Chicago, was elected president for the fothcoming year and Joseph S. Miller, president, New Haven Pulp & Board Co., was elected vice president.

D. H. PATTERSON, Jr., President and General Manager, Fibreboard Products Inc., San Francisco, who was elected for ensuing year to the Executive Committee of the National Paperboard Association.

Pacific Coast regional directors elected for the ensuring year were D. H. Patterson, Jr., president and general manager, Fibreboard Products Inc., San Francisco; Clarence J. Schoo, vice president, Longview Fibre Company, Longview, Wash., and John W. Kieckhefer, Kieckhefer Container Company, Milwaukee, Wis. Mr. Patterson also was elected to the association's executive committee.

Charles E. Nelson, of Otsego, Mich., the retiring president, said in his report: "The WPB not only does not want to restrict the production of paperboard, as it was restraining it one year ago, but it is actively encouraging the production of as much paperboard as possible."

He said mill operators "failed to make a sufficiently determined protest to the WPB and OPA" when they saw the "impending shortage in the offing." Referring to rising prices of raw materials, he warned the WPB and OPA that "the last straw will break the camel's back."

Among a few companies admitted to membership in the association during the past year, he named West Coast Paper Board Mills, Inc., Southeastern Avenue and 61st St., Los Angeles (W. H. Kewell, listed as director).

Mrs. Dunlap Joins WACs

● Mrs. Olive Dunlap, employe of the Pulp Division, Weyerhaeuser Timber Company, and president of the Longview, Wash., Business and Professional Women's Club, has enlisted in the WACs and recently left for the WAC training center at Des Moines, Ia.

During her service with the Weyerhaeuser Timber Company, Mrs. Dunlap was first secretary to R. B. Wolf, manager of the Pulp Division, and later to Ray S. Hatch, the research director.

VERNON L. TIPKA, on leave for the duration from Hawley Pulp & Paper Company, has been with the U. S. Army for the past 17 months. After spending the past summer at various camps on the west coast, he has been returned to duty at Fort Warren, Wyoming, at which place he was formerly stationed. A research engineer for the Hawley company before the war, he was very active in Pacific Coast section of TAPPI.

Major Triplett Now In England

Major Cecil L. Triplett, one of the laboratory employes of Hawley Pulp and Paper Company, Oregon City, on leave for the duration, is now stationed in England. He will be remembered as a former Shibley award winner in the Pacific Section of TAPPI.

U. S.-Canada Accord Is Urged In Dealing With Newsprint Crisis

By HAROLD S. FOLEY*

President of Powell River Company.

I KNOW of no time in history when it has been more important to achieve complete accord not only between Americans and Canadians but between the newspaper publishers and the producers of newsprint.

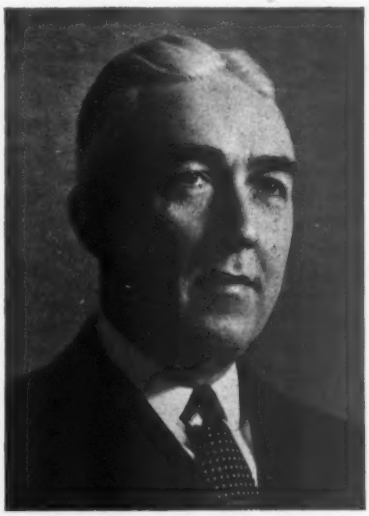
The problem of newsprint today is a serious one and there is no justification, especially now, for painting rosy pictures when the scene is anything but bright. The only sensible thing to do is present the facts as we see them and honestly face them. We cannot make the situation more favorable than it is by simply shutting our eyes to it. And yet, serious though the newsprint situation may be, it could be very much worse—and it may conceivably improve, but it will improve only if we are prepared to be realistic now, appraise the true facts, work on a policy of long-term cooperation and act accordingly.

There is no use denying, for you know, that a serious shortage of newsprint exists today, and there are plenty of sound reasons for that shortage. Pulp and paper manufacturing has for years been Canada's leading industry and it faces today one of its most critical periods at a time when its products were never more needed.

When Canada faces a newsprint problem, the United States automatically faces it too, for Canada is by a wide margin your principal source of supply. Shipments from Canada during the first nine months of this year represented 73 per cent of the total United States supply. The percentage, high as it is, has actually been increasing. For the corresponding period in 1942 Canada supplied 71 per cent of the United States supply.

Voluntary and enforced savings of paper by American publishers this year will not result in effecting a balance between supply and demand. It looks now as though there will be a maximum deficiency as between supply and consumption of more than 200,000 tons.

The apparent consumption for the United States this year is placed at an average of 310,059 tons monthly. The indicated supply is 292,500 tons monthly, of which Canada is undertaking to supply 210,000 tons, the United States 70,000 tons and Newfoundland 12,500 tons.



HAROLD S. FOLEY, President, Powell River Company, Powell River, B. C.; "Newsprint is too important a product of Canadian industry to be manipulated to suit the whims of any one group."

Viewed As World Industry

● It is useless to attempt an analysis of the newsprint situation on purely a regional basis, for Canada, with the United States' War Production Board, long ago prepared for many contingencies by its newsprint control. This move assured each region of Canada and the United States an equal percentage of available newsprint. As you know, Canada's newsprint control pools all productive Canadian capacity for equitable distribution throughout the world but particularly in Canada and the United States. Therefore, newsprint should be analyzed as a world industry and the problem must be studied as such to reach an intelligent conclusion regarding its present position. It is quite obvious that one important reason for the shortage of newsprint has been the elimination from world markets of the output of the Scandinavian countries. Before the war Scandinavian pulp and paper entered the United States and other world markets in considerable volume and their elimination has forced a tremendous load on the production facilities of this continent.

In Canada our greatest concern has been the shortage of manpower and this is easily understandable when you realize that Canada, with a population of 11,500,000 has enrolled more han 725,000 in its armed forces. And that is apart altogether from the diversion of labor from peacetime industry into war plants which have so far produced in Canada munitions to the value of four and a half billion dollars, more than 500 ships, 8,000 aircraft, half a million auto vehicles and a vast quantity and variety of other essential war equipment and supplies..

Canada has national selective service. Canada can, and does, draft men to work as well as fight. But the National Selective Service labor office, in dividing up the dwindling supply of manpower, must consider the competing claims of munitions plants, shipyards and all sorts of wartime services which have prior claims to newsprint production on the available manpower.

The effect of such a diversion of man and woman power has naturally been a serious one on the newsprint industry from woods to paper mills. The Canadian government realizes the seriousness of the situation confronting our industry which, in normal times, outranks all others in volume of exports and production revenue, but part of our problem may be due to delay in reaching that realization. The Canadian newsprint industry, however, cannot be held responsible, for many months ago its spokesmen sounded a warning that production could not be expected to maintain its usual high level in the face of the growing shortage of labor. And perhaps I need not mention that the situation we face today is also at least partly due to lack of foresight and positive action a year or more ago to conserve and curtail consumption of newsprint in the United States.

I can tell you unofficially that National Selective Service has already taken some positive action to raise our manpower requirement rating to a category that will help to a great degree. In addition to this, the Canadian Army has recently returned

*An address before Pacific Northwest Newspaper Association in Portland, Ore., October 28, 1943.

from overseas 1,700 men of their Forestry Corps. These men will be available for woods work immediately and we feel that this will have a most helpful effect on our wood supply situation. These and many other moves will help to improve the Canadian wood supply.

Woodpulp "Too Popular"

● As you realize, newsprint is not the only product of pulpwood. In Canada, as a matter of fact, only 46 per cent of our pulpwood cut goes into production of newsprint. Woodpulp, as you know, has an amazing variety of uses, many of them extremely important to the war effort —in addition to the logs and wood pulp exported to the United States for pulp and paper uses.

Let me quote from a recent issue of the New York Times:

"Woodpulp is entirely too popular. It is essential for many other uses than the manufacture of newsprint . . . It is nitrated into explosives. It is the basis of many plastics which substitute for metal. It is made into synthetic fibers, 70 per cent of which go into 'front line' uses such as tires, fragmentation bombs, powder bags and various types of military clothing.

"When made into paper board, it forms the best possible container for small-arms munitions and packaging of various types ranging from blood plasma to food and medical supplies. In the heavier form of building board it substitutes for lumber in airplane, submarine and even in army housing construction.

"In the form of paper it enters into the life of every individual and every industry, if only to the extent of the letterhead which confirms the order and the label which identifies and directs their shipment. Birth and death certificates, marriage licenses, draft cards and ration books, wood pulp and its product, paper, assure and direct us all the way through life.

"It is obvious that when military and civilian needs both draw on the same source the latter is likely to suffer when supplies are limited, even when the civilian needs are rated as essential or, in fact, are not wholly civilian."

The New York Times tells at least a part of the story and tells it well, although it would be possible to marshal many more facts to demonstrate to you the cause of the newsprint shortage. If the Canadian newsprint industry can not meet all your requirements it won't be through want of trying nor due to lack of recognition of the valuable services performed by the newspapers in war. The newsprint, industry, indeed, shares something of the pride which you publishers must feel in providing the means for the dissemination of news among the free peoples of the world.

Of the 3,040,000 tons of newsprint paper which the Canadian industry expects to produce this year only about six per cent is required for the restricted home consumption in Canada. The balance is for export.

Canada this year expects to meet 73 per cent of the United States' supplies, 29 per cent of the United Kingdom's, 81 per cent of Latin America's, 45 per cent of Australia's and 70 per cent of the requirements of all other non-Axis countries. This is a tremendous wartime task.

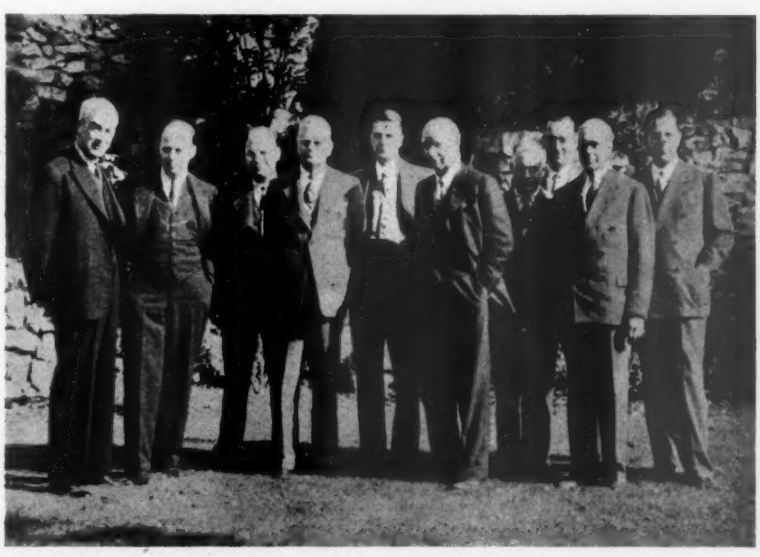
Bears Responsibility

● The Canadian pulp and paper industry for the last 25 years has been consistently one of the most important manufacturing activities in our country. It has headed the list in net value of production, wages and salary distribution since 1920.

The products of our industry have been the chief contributor in sustaining Canada's favorable balance of trade and, incidentally, our industry is the largest single industrial employer in Canada.

These are some of the reasons for the sense of responsibility that is borne by Canada's newsprint manufacturers and are good reasons why our industry, and our country, is anxious to do everything possible to avoid any offence to a good neighbor and to the publishers, as valued customers.

In some quarters there has been a feeling that the Canadian newsprint manufacturers were crying "wolf" over an artificial shortage or that we developed a synthetic crisis to win higher prices. As you can see, newsprint is too important a product of Canadian industry, too important a factor in our peacetime and wartime economy to be manipulated to suit the whims of any one group. Our industry and the Canadian government entered the newsprint control plan with the expressed intention of avoiding runaway paper prices such as existed during the last war. Although publishers have paid an $8.00 increase in the price of newsprint, this does not begin to offset the increased cost of delivery



REPRESENTATIVES OF WEYERHAEUSER TIMBER COMPANY RECENTLY VISITED POWELL RIVER COMPANY and officials of the two companies are shown here with Canadian hosts on the grounds of the directors' house at Powell River, B. C.

Left to right: R. BELL-IRVING, Vice President of Powell River Company; R. B. WOLF, Manager, Pulp Division, Weyerhaeuser Timber Company; R. C. BLEDSOE, Chief Chemist, Powell River Company; H. T. KENDALL, Sales Manager, Weyerhaeuser Timber Company; PRENTICE BLOEDEL, President of Bloedel, Stewart & Welch, prospective postwar builders of a Vancouver Island pulp mill; R. M. WEYERHAEUSER, President, Potlatch Forests, Inc.; D. A. EVANS, Resident Manager, Powell River Company; RUSSELL M. COOPER, General Superintendent, Powell River Company; STUART COPELAND and F. K. WEYERHAEUSER, President of Weyerhaeuser Sales Company, St. Paul, Minn.

The visitors attended a western lumber sales conference in Vancouver, B. C., which was attended also by J. P. WEYERHAEUSER, Executive Vice President, and CHARLES H. INGRAM, General Manager of the timber company.

of our product which must be borne by the manufacturer and virtually every commodity and service used in the manufacture of newsprint has advanced most substantially. On the coast here, the price of our major commodity, wood, has increased 88 per cent in the last three years. Labor, fuel and other factors have also risen.

Canadian newsprint manufacturers have the most to lose if this present acute situation should be misinterpreted, or if any suspicion was created in your minds that we are not doing all within our power to meet the needs of the time. I am convinced that in view of all of its handicaps, the Canadian newsprint industry has not done a bad job.

Do not overlook the fact this is Canada's fourth year of war. The war has been a tremendous strain on our economics, industrial and manpower reserves, yet the shipments of newsprint from Canada last year, when the drain on manpower was relatively as great as it will presumably be in the United States in 1944, still were 617,000 tons over its shipments in 1939 and 500,000 tons above its five year pre-war average shipments. In percentages these are 134 and 122 per cent respectively of pre-war shipments. Canada alone was able to more than double the loss of shipments which were sustained by United States publishers who had previously bought from overseas markets.

Exports Exceed 1939 Total

● The facts and figures for 1943 are more impressive. This is a year when Canada has been accused, in some quarters, of deliberately holding back supplies from publishers, yet Canada will ship to the United States, this year, nearly 350,000 tons more than she shipped in 1939 when Canada was at peace. United States mills this year, on the other hand, will ship 146,000 tons, or 15 per cent less than in 1939. In addition to our contribution of newsprint, Canada has been called upon to support the pulp and paper industry by shipping 1,300,000 tons of pulp into the American market, or more than double the tonnage delivered before the war, also logs and pulpwood in rather large quantities. You must realize that this additional burden must be boren to a great degree by the newsprint manufacturers.

I do not think Canada needs an apologist for its newsprint industry. Our industry has made the best of a difficult situation. What happens during the next few months with respect to the supply of newsprint on this continent will depend, to a great extent, on the cooperation among the consumers of newsprint, i.e, the publishers of America.

The truth is that the publishers, like many others of us, have not always done their utmost to protect their own position. At the beginning of this year, an advisory committee of the publishing industry recommended to the War Production Board the "freezing" of consumption on a basis of 1941 net paid circulation with a cushion of three per cent to take care of extras. This recommendation adopted by W.P.B. was to produce a saving of 10 per cent in paper consumption. You know the saving was not accomplished.

The publishers expected a sharp curtailment in advertising during 1943 and the saving of paper was to have come through smaller-sized papers. Instead, advertising lineage increased and the saving disappeared.

Then followed the first enforced reduction of five per cent in consumption. On the basis of allocation the five per cent was saved but special allocation just about offset the enforced saving. A second cut of five per cent was ordered beginning October 1st. From some quarters, I understand, the publishers themselves are not very hopeful that a saving will result. The American publishing industry, as a whole, has been using more paper than is being received. Your stocks are being reduced and the volume of orders placed with the Canadian maufacturers still exceeds the allotted 210,000 tons monthly.

Through some method, the amount of newsprint consumption should be reduced. The machinery exists for an intelligent survey of the situation by both governments and I strongly recommend that every cooperation possible be given for an immediate adjustment in consumption which will avoid a drastic curtailment some time during this coming year.

Let me emphasize once again, the newsprint industry of Canada values the good will of the publishers of the United States and we hope to so conduct ourselves during this emergency that we will have you as good and dependable friends when conditions return to normal.

Happy Xmas Assured Coast Industry As Wage Increases Get Final O. K.

● A happy Christmas was assured the entire pulp and paper industry of the three Pacific Coast states when early this month the government gave final endorsement to a basic hourly wage rate of 90 cents, retroactive to June 1.

Thus, the highest wage scale for the industry anywhere in the entire world was put into effect. Wage increases and adjustments were estimated to bring an added income of nearly $2,000,000 to some 14,000 employes in 34 mills in the three states.

The Regional War Labor Boards gave their approval to the wage adjustments which were formulated September 13-17 at the Portland, Ore., meeting of bargaining agents of the two American Federation of Labor unions and the Pacific Coast Association of Pulp & Paper Manufacturers.

The order issued by the labor boards gave an increase of 5 to 7½ cents an hour to employes. The five-cent increase was for employes in the industry six months or more. The 7½-cent increase was for those employed less than six months.

Government agencies acted on the voluntary application of the Pacific Coast Association of Pulp & Paper Manufacturers, the International Brotherhood of Pulp, Sulphite & Paper Mill Workers and the International Brotherhood of Paper Makers.

In addition to the wage increase, a differential in women's pay rates was removed, and more liberal vacation provisions were made.

Last year a ten cent increase for employes with over six months' service was granted.

Rayonier Brings Suit To End "Slow-Down"

● Rayonier Incorporated filed suit in the United States District Court in Tacoma, Wash., December 3 against 38 employes of its Hoquiam division for $104,000, charging that a slow-down action by employes had cut plant production by 50 per cent over a three-week period.

The complaint also asked for continuing damages for the duration of the "slow-down." Several dozen "John Does" were listed in the complaint in addition to the 38.

The complaint charges that the defendants entered a conspiracy to nullify the 10-year-old uniform labor agreement with AFL unions, which won approval of the National Labor Relations Board after a hearing at Hoquiam several months ago.

DESPITE URGENT DESIRE OF U. S. ARMY ORDNANCE AND GOVERNMENT AGENCIES FOR CONTINUED PRODUCTION OF ESSENTIAL PRODUCTS AT THE HOQUIAM MILL THE CIO UNION POSTED A PICKET LINE AT THE MILL ON THE NIGHT OF DECEMBER 4, CAUSING A COMPLETE WORK STOPPAGE THERE FOR THE SECOND TIME THIS YEAR.

Packaging Institute Hears About Shortages, Government Plans

Committee develops series of standards for package engineering ✓ ✓ ✓ Suggestions are made regarding renegotiation of and termination of contracts, which many firms will experience during 1944.

(An editorial representative of PACIFIC PULP & PAPER INDUSTRY attended the Packaging Institute in New York and wrote this report especially for this magazine).

WHEN the hungry maw of war in 1942 began to gobble up U. S. steel production, and the Japanese armies over-ran the world's major sources of tin, packaging engineers first looked to glass, and then to paper and related products, to contain the foods and other packaged products of America that were essential to success in the conflict. The 1942 conference of Packaging Institute, Inc., held in New York City a year ago, reflected that point of view, a large part of the discussions being on how best to convert to these substitute forms of containers.

Early in 1943, however, a pinch began to develop in the substitutes themselves. Glass output dropped behind demand, cellophane was allocated, priorities were assigned to fibre cases. In consequence, when Packaging Institute met again in New York City, on November 4 and 5, 1943, the emphasis was not upon what to do about tin and steel, but rather upon how best to use the large but limited outputs of U. S. glass factories, and of the paper and related industries.

1944 Package Supplies

One of the best-attended sessions was that headed "Materials in a War Economy," at which a panel of eight men gave their views on the supply picture for various types of packaging materials through 1943 and 1944.

Fiberboard Containers: The U. S. shortage has become so acute, that WPB has recently barred still more products from using this type of package. Demand has skyrocketed, but lack of both labor and raw materials cut 1943 output below that of 1942, and the trend is still downward. Used boxes are also short. Food packers and all other users of fiberboard containers should take an active part in collection campaigns for both waste paper and used boxes. No further saving in materials by reducing the thickness of liners is likely; in fact, shipping experience indicates that they may already be too light. Production of V-boxes is still a very small percentage of the total output.

Boxboard: The situation is like that in fiber. Production reached a weekly peak of about 157,000 tons in early 1943, but has since declined to around 143,000 tons. Raw materials, especially waste paper, are the major problem, many mills being able to operate only intermittently. Support of the waste paper drive is essential.

Collapsible Tubes: Manufacturers using these in 1943 probably will be able to secure about the same quantities in 1944. The major danger here is shortage of chipboard and fiber boxes to hold the products; buyers of tubes should return such boxes to their suppliers.

LEADERS IN THE PACKAGING INSTITUTE held in New York City:

Top Row—The trio on the left compose a committee assigned the task of developing standards for package testing: (left to right) W. H. GRAEBNER, Director of Development Dept., Menasha Products Co., Menasha, Wis.; CHARLES A. SOUTHWICK, JR., Director of Research, Shellmar Products Co., Mt. Vernon, O., and F. S. LEINBACH, Riegel Paper Company, New York. The next pair are A. B. HUYSSOON, Vice President, Continental Paper Co., New Jersey, WPB consultant, who spoke on "Boxboards," and J. D. MALCOLMSON, Robert Gair, Inc., New York, who discussed "Fibreboard Containers."

Middle Group (left to right): C. M. CONNOR, Glassine Paper Co., Conshohocken, Pa., who spoke on "Protective Papers;" FREDERIC REMINGTON, President, Peerless Tube Co., Bloomfield, N. J., and WALTON D. LYNCH, Vice President, National Folding Box Co., New Haven, Conn., who is acting here as Chairman of one of the sessions.

Lower Row (left to right): Dr. J. H. TOULOUSE, Owens-Illinois Glass Co., Toledo, O.; M. A. BROWN, Advertising Manager, Monsanto Chemical Co., St. Louis (pinch-hitting for J. R. TURNBULL of Monsanto Chemical Co., Springfield, Mass.), whose talk was on "Transparent coverings and plastics"; JOEL Y. LUND, Vice President, Lambert Pharmacal Co., St. Louis, and President of the Institute, and CHARLES L. SHELDON, Purchasing Agent, Hood Rubber Co., Division of B. F. Goodrich Company, Watertown, Mass., shown discussing "Today's Packaging Picture."

Protective Papers: The raw material problem here is as serious as in the fiber and boxboard fields—perhaps more so, because of the fact that manufacturers in this field use specialty pulps. In 1944, a large decrease in pulpwood output is anticipated and the specialty pulps decline may be 10% or more. The glycerin situation is improved, but the pigment shortage grows, affecting especially light-protective papers. A new quarterly allocation of wood pulp will be based on essentiality, and changes in the demand for kraft pulp for fiberboard will affect protective papers.

Transparent Coverings: All commercially important plastic materials are under strict control, and available supplies are further reduced by the fact that many of the materials are necessary to the armed forces for other needs. Today the picture in the "rubbery" type of plastic material looks better, as the synthetic rubber program eases the demand upon some of the necessary materials for rubber-substitutes. In the cellulose field, the raw material situation described for fiber and boxboard applies. Next year should see the industry produce enough for the needs of the armed forces, and some additional for important civilian use.

Packaging Practices

Package Engineering Manual: Today, according to the speakers at this roundtable discussion, packaging in tin and glass are carried on according to well-defined engineering principles, but packaging in paper, foil, film, etc., is not so standardized. Also, whereas the visual factor in packaging originally was most important, the war brought a swing to the protective side of the container, and today a need is felt for a balance between these two. At the same time, studies have shown that a proper package for almost any commodity may be engineered, just as a bridge is built, by: (a) establishing the practical density, so as to set the amount of bulk per any given weight; (b) calculating the square inches of package surface that will be exposed for any given quantity of the product; (c) determining the product's optimum moisture content, and the amount of moisture it can pick up or lose before it becomes unsalable; (d) comparing this moisture factor with the square inches of exposed package surface to establish the degree of moisture-proofness required.

To meet these several needs, a committee composed of Charles A. Southwick (Shellmar), F. S. Leinbach (Riegel Paper Corp., New York City) and W. H. Graebner (Menasha Products Co., Menasha, Wis.) is developing an outline and a series of standards for package engineering. Many tests and practices, including some developed by TAPPI, have been found satisfactory, but more work is needed on others.

An interesting sidelight referred to by the speakers is that packaging need not necessarily be for permanent protection in all instances. There is a satisfactory ratio between packaging cost and product cost, and another between packaging cost and the cost of returned goods for spoilage.

Water-resistant Glues: The job of the adhesives industry to develop water-resistant glues to meet government overseas requirements was a difficult one. Hot melts (like the hot pick-up glues used in can labeling) flow under continuous force, and eventually there would be bond failures at the flaps of fiber containers, etc. With non-aqueous glues, solvents evaporate too rapidly for practical use, and tend to penetrate the stock too deeply, since they do not swell the fibers in the stock as water does. So it was necessary to develop an acqueous type of glue which, upon application, would undergo a chemical change to make it non-soluble in water for considerable periods. It also had to have such properties as being relatively foolproof in use, being able to produce a permanent bond between irregular surfaces, and experiencing the desired chemical reaction regardless of the type of material on which it was to be applied. The distances and climates to which foods are going today testify to the caliber of the work done. In the postwar era, these new glues will have many uses, in such fields as frozen foods, manufacture of fiber cans, multiwall paper sack manufacture, bottled beverages, etc.

Government In 1944

Regulation: Control of packaging materials in wartime is deemed essential, one speaker declared, and while the various orders issued have not been perfect, they are perhaps the best that could be evolved. There will be some modifications in 1944, perhaps some new regulations.

Renegotiation: The Renegotiation Act is up before Congress for possible amendment, and its fate should be closely watched. Renegotiation will be an experience through which many firms will pass in 1944, so executives also should watch outcome of the Lincoln Electric case. Profits allowed under renegotiation to date have varied widely, from 6 to 18%. It was held that renegotiation would proceed more equitably if it were in the hands of local boards instead of final decisions being made in the capital. If the latter is inevitable, it was suggested that the internal revenue division of the Treasury Department, because of its experience and many years of case records, be drafted to do the job.

Termination: Many other firms will experience partial or complete termination of contracts with the government in 1944. The U. S. Army has a definite program for this operation, which unfortunately is not the case with all government agencies. The army plan permits figuring the financial settlement on a formula basis (either with inventory as basis, or costs-to-date) or a negotiated basis (which often becomes simply a formula settlement with accompanying incidental music). The government deals only with the prime contractor; it is up to the prime contractor to work out with his subcontractors the basis on which they feel payment on the terminated contract should be made. What is allowed and what is not in the way of expenses on terminated contracts may be learned from the nearest contracting officer.

Among those who spoke at the conference and the subjects they discussed, were:

Joel Y. Lund, vice-president, Lambert Pharmacal Co., and president, Packaging Institute—chairman, opening session.

Charles L. Sheldon, purchasing agent, Hood Rubber Co.—"What Is Today's Packaging Picture?"

Charles A. Southwick, Jr., director of research and development, Shellmar Products Co.—chairman, second session.

F. S. Leinbach, Riegel Paper Corp., and **W. H. Graebner,** Menasha Products Co. (with Chas. Southwick)—"Standards and Methods of Package Testing."

Walton D. Lynch, vice-president National Folding Box Co.—chairman, third session.

J. D. Malcolmson, Robert Gair, Inc.—"Fiberboard Containers."

A. B. Huyssoon, Continental Paper Co.—"Boxboard."

Frederick Remington, Peerless Tube Co.—"Collapsible Tubes."

C. M. Connor, Glassine Paper Co.—"Protective Papers."

M. A. Brown, Monsanto Chemical Co.—"Transparent Coverings."

Wallace D. Kimball, first vice-president, Standard-Knapp Corp.—chairman, final session.

John W. Hooper, vice-president, American Machine & Foundry Co.—"Government Contract Terminations."

George A. Mohlman, president, Package Machinery Co.—"Renegotiation."

Foresters' Society Meets at Camas; Shown How New and Old Products Are Made

● When the Society of American Foresters (Columbia-Willamette Valleys Section) met on November 8 at Camas, Wash., they found some surprises in store for them. The Crown-Zellerbach Corporation, as host, prepared for them a personally conducted tour through the great mill. Under guidance of selected cicerones, the nearly seventy foresters learned of papermaking, from start to finish. From the log pond through miles of building passages, on floors of concrete, on elevated walkways, in traffic congested tunnels, the foresters walked for two hours. In the sawmill great logs hit the deck where some had to be bucked before they passed to the head saw and gang saws for reduction. The groups followed wood's tortuous travel, the cooking processes, etc., to the final processing of all types of papers.

When the tour was done, such expressions were heard as: "I never saw so much machinery concentrated in one place." "What an infinite assortment of products come from one tree." "Could any process be more highly developed than this paper business?"

Then the foresters convened in the foreman's room of the McMaster Building under Acting Chairman Paul M. Dunn, Dean of the School of Forestry, Oregon State College. Ed. P. Stamm, logging manager, Crown Willamette Paper Company, division of Crown Zellerbach Corporation, on his introduction, presented A. G. Natwick, assistant resident manager of the mill, and William R. Barber, director of the Central Technical Department. Mr. Barber gave an interesting presentation of the industry.

"We are scavengers of trees and wood," he declared, "whenever depreciation is not too great." He divided the processes of the industry into two breakdowns and a build-up. One step he termed the "mechanical breakdown" of a tree; a second step, the "chemical breakdown," and the "rebuilding," he said, as the fibers took form in regrouping for a new material, and passed on to the machines from which it emerged as paper.

ED P. STAMM, Logging Manager, Crown Willamette Paper Company, Division of Crown Zellerbach Corp., who arranged for the foresters' tour and meeting at the Camas, Wash., mill.

MEMBERS OF SOCIETY OF AMERICAN FORESTERS held a meeting November 8 at the Crown Zellerbach Corporation mill at Camas, Wash. Among those present:

Top row (left to right): GEORGE FLANAGAN, Chief Forester, Estate of E. S. Collins, Portland, Ore.; WALTER JACOBY, Assistant Technical Supervisor at the Camas mill. A group of visitors and their hosts—W. F. HOLZER, Central Technical Dept., Crown Zellerbach Corp.; H. S. SACKETTE, Monsanto Chemical Co.; H. G. WYCKOFF, Director, Pacific Northwest Forest Service Experimental Station, Portland (looking down), and A. G. NATWICK, Assistant Resident Manager at Camas; next, an unidentified visitor talking with W. R. BARBER (back to camera), Director, Central Technical Dept., Crown Zellerbach Corp.; next man obscured, and the last one on right is C. A. ANDERSON of the Camas mill.

Lower row (left to right): DEAN PAUL M. DUNN, Forestry School, Oregon State College, who presided at the meeting; W. H. HORNING, Chief Forester, Oregon & California Revested Lands Administration, Portland; in the next group—G. H. GALLOWAY, Technical Supervisor of the Camas mill; H. S. SACKETTE, Monsanto Chemical Co.; DAVID T. MASON, Forestry Consultant, Portland, and CAPT. JOHN B. WOODS, Director, Oregon Forest Fire Association.

Camas Products Shown

A variety of samples of the Camas products — groundwood fiber, pulping fiber, wet stretch paper and paper plastics were passed around for examination. Mr. Barber discussed special chemical treatment of paper for wrapping of citrus fruit to prevent development of both blue and green mold; impregnation of paper with synthetic resins to create various plastic forms; and the more recent development of "wet-strength" paper to meet the demands of government agencies for wrappings impervious to action of water, fresh or salt.

W. F. Holzer, developed a study of "Wood Fibers," which he illustrated with photomicrographs. From these, fibers of Western hemlock, White fir, Douglas fir and Yellow pine are identified. Uses of cottonwood were shown and at the Camas mill, he explained fiber from this wood went only into toilet tissue because it added both strength and softness. By means of electronic photomicrographs which enlarge 13,000 times as against an optical microscope's 1,000, he revealed fibers that could not be seen by ordinary means.

Guests presented were: Holett Spencer of South Carolina; Maurice Istead, U. S. Army Engineers; Prof. George Barnes, Oregon State College; L. R. Hilton, Central Rocky Mountain section of the Society, and Berle Smith, Ted Olson and Robert King, all of the timber department of Crown-Zellerbach Corporation.

Janecek Goes East; Black, Bennett on Coast

● J. L. Janecek, general superintendent of the Inland Empire Paper Company of Millwood (Spokane), Wash., made an eastern trip in November, including calls at mills in Wisconsin.

He left after the return to Spokane of Myron W. Black, sulphite superintendent and technical director, and Robert Bennett, sales representative of the Inland Empire Paper Company from western Washington and Oregon. Mr. Black and Mr. Bennett made a tour of the whole log hydraulic barking and chipping plant at the Everett, Wash., mill of the Pulp Division, Weyerhaeuser Timber Company.

British Columbia Companies and Employes Buy More Than $3,000,000 in War Bonds

● All British Columbia's pulp and paper companies went "over the top" in their recent Canadian war bond purchases. Every mill exceeded its quota by a substantial margin, and it is probable that by the time all the subscriptions are tallied up the industry will be found to have purchased more than $3,000,000 worth of the securities.

The Victory Loan campaign recently completed in Canada was the fifth of a series, the first of which having been initiated during the first year of Canada's participation in the war.

Quotas fixed for Canadian industries were more exacting than those for industrial corporations in the United States, where 90 per cent employe participation in bond buying and 10 per cent payroll deductions represented the objective for award of the Minute Man or Treasury T flags.

In Canada, the aim was to obtain at least 90 per cent participation of all employees and payroll deduction of at least 12½ per cent. The pledge by employes was effective for a six months period, the time allotted for all payroll payments to be made.

In addition to employe purchases, all the companies bought Victory Bonds on their own behalf. For instance, Powell River Company and Pacific Mills each subscribed for $750,000.

Because of its larger employment, Powell River Co. made a particularly aggressive campaign, with gratifying results. In a three-weeks' campaign, a total of 92.5 per cent of 1,399 employes pledged $288,150 for the purchase of bonds. This represents 14 per cent of a six months' payroll. D. A. Evans, resident manager of the Powell River Co., served the entire Powell River community as chairman of the Victory Loan committee, was in active charge of the campaign at the mill.

The town of Powell River led the entire province of British Columbia through most of the campaign, and was second only to North Vancouver in exceeding its quota. In the Powell River mill, there was competition among all departments, with 21 out of 28 exceeding their quotas.

Similar campaigns on a small scale were succesfully carried out by other companies. Pacific Mills, for instance, reported employe subscriptions at Ocean Falls amounting to $138,500 and at the Vancouver division $15,100.

B. C. Pulp & Paper Co. employes at Woodfibre purchased $71,450 worth of the bonds, 479 individual applications being received there, and the same company's employes at Port Alice bought $68,500 worth in addition to some acquired individually by employes through the bank. In each community close to 100 per cent of the employes participated.

Sorg Pulp Co. at Port Mellon, Westminster Paper Mills at New Westminster and Sidney Roofing & Paper Co. were also heavy subscribers, maintaining the tradition of the industry in support of the Victory Loan.

VICTOR A. HUGHES, Secretary of Pacific Coast Paper Mills of Washington, Inc., Bellingham, Wash., makers of toilet tissue and towels, was chosen as the General Chairman of the Community and War Chest campaign in Bellingham this fall.

Hundreds of public-spirited citizens of the Puget Sound city went to work under Mr. Hughes with an $86,000 goal as their objective and with a parade, rally and other stunts to help along the drive.

F. J. HERB, Vice President and General Manager of Pacific Coast Paper Mills, served as Vice President of the Community and War Chest organization.

"Ag" Hansen Resigns; Succeeded by Madden

● In another sudden WPB upheaval in Washington, Agner B. Hansen of Green Bay, Wis., resigned in late November as director of the Pulp Production Division, Forest Products Bureau, War Production Board.

James M. Madden, vice president of Hollingsworth & Whitney Co., Boston, Mass., operators of two mills in Maine and one in Alabama, has succeeded Mr. Hansen.

As a result of this change, a regional industry meeting which Mr. Hansen had planned to hold in Seattle this winter may be called off or postponed until some later date. The purpose of the meeting was to discuss ways and means of increasing Pacific Coast pulpwood production.

This magazine has made inquiries concerning Mr. Madden's plans affecting the Pacific Coast industry and these will be published as promptly as possible.

Mr. Hansen returned to his position as president of Northern Paper Mills, Green Bay.

Meder Johnsons Now Three

● A daughter, Karen Lynne, was born November 15 to Meder Johnson, resident plant engineer of Port Angeles, Wash., division of Rayonier Incorporated, and Mrs. Johnson. This is their first child. Mr. and Mrs. Johnson both were born in Bellingham, Wash., but met in Port Angeles. He is coordinator and procurement man in the war work program of the machine shops of five Olympic peninsula mills.

LIEUT. (Senior Grade) HARRY MARSHALL, U. S. NAVY, who recently "joined up" and went to Fort Schuyler, N. Y., for indoctrination training. Member of the firm of Marshall & Barr, consulting engineers, Seattle. Lieut. MARSHALL is well known in Pacific Coast industry circles.

Graduate of the University of Washington, he was in charge of design during construction of two additions to Soundview Pulp Company, Everett, Wash., and later was associated with Harold D. Cavin and C. M. Barr in design and construction of the Puget Sound Pulp & Timber Company addition in Bellingham, Wash., in 1937-8. More recently he and Mr. Barr designed construction for St. Regis Paper Company Kraft Division, Tacoma, Wash.

Ekholm Makes 165-Yd. Hole-In-One

● Erik Ekholm, general superintendent, Puget Sound Pulp & Timber Company, Bellingham, Wash., enters that select circle of golfers who can boast of a hole in one.

Not a whisper of this feat came to us from the modest Mr. Ekholm himself. We learned of it through this October 31 clipping in the Bellingham Herald:

"Erik Ekholm has had his golfing ability obscured by the more publicized links activities of his wife, Marie, Whatcom County's No. 1 feminine golfer. But that was until last week at the Bellingham Golf & Country Club when Erik crashed into the golfing news by holing his tee shot at No. 14, a 165-yard effort, for his first ace. Playing with him at the time were Lawson Turcotte and two other friends who witnessed the shot."

Mulligan a Major

Doyle Mulligan, formerly foreman in the converting department of Hawley Pulp and Paper Company, Oregon City, who has spent the past three years with Uncle Sam's armed forces, has just received a promotion to his majority.

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Some Statistics Showing Superiority of Rayon Tire-Cord

● In a hearing before the Truman senate committee concerning the relative merits of cotton versus rayon tire-cord made prior to the approval of the conversion of an additional 40,000,000 pounds capacity for the manufacture of rayon tire-cord, a report from Donald Nelson maintained that rayon tires had a 25 per cent superiority over standard cotton cord. This conclusion was based on results of tests made by the Army during the past three months.

A steadily increasing portion of rayon cord is made from Pacific Coast pulp.

In all, 844 cotton cord tires and 241 rayon cord tires were tested for impact and heat resistance. In the impact test, taking 8-ply cotton tires as 100 per cent, an 8-ply cotton cord with 2-cap plys was rated 116 per cent, a 10-ply cotton cord 110 per cent and an 8-ply rayon 155 per cent. The results were declared to show a 26 per cent advantage for rayon.

The heat tests showed rayon to have a 24 per cent advantage as is evidenced by the experimental results in which the 8-ply cotton was 100 per cent, the 8-ply cotton with 2-ply cap was also 100 per cent, the 10-ply cotton rated 110 per cent and the 8-ply rayon 124 per cent. Averaging both tests, rayon surpassed cotton by a 25 per cent advantage.

Also presented to the Truman committee as further evidence of the superiority of rayon over cotton was a telegram to the Chief of the Ordnance Technical Section of the War Department from the Ordnance Division Pneumatic Advisory Committee, and signed by the "Big Four" rubber companies, stating that it was necessary to use rayon in large size Army tires of 8.25:20: 10-ply and up, made with 30 per cent natural rubber, and that if sufficient rayon was available it would be advisable to use it in smaller tires also. Several smaller rubber companies also voiced this opinion.

Figures on rayon tire-cord production released in the Nelson report reveal that on August 21, the rayon industry had an annual authorized capacity for high-tenacity rayon of 162,000,000 pounds. But the actual production for 1944 was estimated at only 124,000,000 pounds.

This compares with the Rubber Director's requirements of 206,000,000 pounds of rayon and 200,000,000 pounds of cotton tire-cord, or a total of 406,000,000 pounds of tire-cord required in 1944. The figure for all types of tire-cord in 1941 was 335,000,000 pounds, 21 per cent lower than the present needs.

Another problem with which the industry will have to cope in meeting this enlarged program is the availability of additional supplies of cellulose (dissolving wood pulp and refined cotton linters), carbon bisulphide, sulphuric acid and caustic soda. The supply of cellulose already is tight—Rayon Organon.

Fir-Tex Man Dies In Gilberts Invasion

● Management and employes of Fir-Tex Insulating Board Company, St. Helens, Ore., were saddened in late November on receipt of word that Lafayette F. Farley, a member of the United States Marine Corps, lost his life in the recent U. S. invasion of the Gilbert Islands in the South Pacific. Farley originally enlisted in the Seabees and was still with them this summer when he returned to St. Helens on leave. Since then, he had joined the Marines. At Fir-Tex, Farley operated one of the electric industrial trucks.

EMPLOYES OF THE EVERETT, WASH., MILL OF THE PULP DIVISION, WEYERHAEUSER TIMBER COMPANY, have been investing more than ten per cent of their pay in war bonds since February. But—not satisfied with this—they invested an additional $16,823.42 in bonds in the recent Third Loan War Drive. This was over and above $6,557.83 deducted from checks of about 275 employes.

The company put up a $100, $50 and $25 bond as prizes in the campaign and these were awarded at the final bond rally. RUSSELL J. LEROUX, Mill Manager, gives credit for the fine showing to the plant's bond sales committee, shown in the back row, above: Top row, left to right: ARTHUR F. WELEBER, Lead Electrician, who was the Chairman; A. S. GERRY, Credit Union President; RAY VERLINDA, HENRY BLAINE and ROY POTTER.

Lower row, left to right: The three bond prize winners, AL WHITNEY, TOM MORAN and HAROLD MacDONALD.

DAVID G. STENSTROM (above) of Vancouver, B. C., has been appointed Deputy Technical Adviser to the Pulp and Paper Products Administration of Canada's Wartime Prices and Trade Board in Montreal, effective December 10.

Mr. STENSTROM has been making surveys for Powell River Company recently. He was with Pacific Mills, Ltd., from 1917 to 1935, latterly as Resident Manager at Ocean Falls. For three subsequent years he was Manager of the St. Lawrence Paper Company at Montreal. Most of 1939 he spent in Australia, helping to launch a paper industry there.

Mr. STENSTROM hopes to return to British Columbia when his wartime work terminates. His family will live in Vancouver. One son is an army doctor; another is in a chemical war industry at Shawinigan Falls, Que.

Ed Tidland Suffers Broken Leg In Fall

● Ed Tidland, manager of the Pacific Coast Supply Company, 1116 Public Service Building, Portland, Ore., broke his leg below the knee on November 13 when he fell while climbing over rough ground near his Camas, Wash., home.

The accident kept Mr. Tidland abed for more that two weeks before he was able to start getting around on crutches.

This is the second unfortunate accident he has suffered this year. In January, just before he took over as manager of the Pacific Coast Supply Company, succeeding Lieut. John M. Fulton, U. S. Navy, he cut the tendons of his right hand in machinery in an accident which was unavoidable on his part.

Ruefully, Mr. Tidland recalled to friends that he never had a serious accident in nearly 25 years of working daily with machinery, before becoming a sales executive.

Engineer's Son Escapes

A son of G. A. MacKay, engineering department, Powell River Company, made a thrilling escape from an Italian prison camp and reached London safely. He is Capt. John MacKay, 29, who was in the British Imperial Regulars and was wounded in Ethiopia Abyssinia prior to capture at Tobruk.

Report Made on Investigation Of Lower Columbia Pollution

● A "Report on Investigation of Pollution in the Lower Columbia River," sponsored by the Washington State Pollution Commission and the Oregon State Sanitary Authority, has been published. Copies are available from the Washington State Printer.

A general conclusion of the report is that there have as yet been no great damage wrought by pollution but that now the time has come to take precautionary steps, partly because of the increasing industrialization along the lower Columbia.

It stated that kraft mills do not cause any pronounced depletion of oxygen, but it recommended that sulphite mills take steps to accomplish more effective dilution of waste liquor.

Runs of salmon, trout, shad and smelt are not interfered with, it said, but there is a "potential threat" to some of these fish.

Authors of the report are John H. Lincoln, chief chemist, and Richard F. Foster, biologist, both serving the two state agencies. Carl E. Green, of the Oregon State Board of Health, was chairman of advisory committee, on which health, fisheries and game department officials of the two states served.

In a foreword, acknowledgment for assistance is made to the pulp and paper manufacturers and others.

The Columbia River below Bonneville Dam was surveyed to determine the sources and extent of pollution. The summary of the findings, based on data obtained by the field investigations, is as follows:

(1) The effect of the pollution entering the Columbia River above Bonneville Dam may be considered as negligible by the time it reaches Lady Island. During the survey the river water at this point was always supersaturated with dissolved oxygen, and the maximum 5-day biochemical oxygen demand was less than 2.0 p.p.m.

(2) The principal sources of industrial waste pollution in the lower Columbia River are the pulp mills employing the sulfite process and located at Camas, Vancouver and Longview, Washington. Effluents from pulp mills which use the Kraft process did not have a significant effect upon the conditions in the river.

(3) The principal sources of domestic sewage pollution in this area are the cities of Vancouver and Longview, Washington and Portland, Oregon. Less important sources include Kalama, Washington and St. Helens and Rainier, Oregon. All sewage being discharged into the Columbia River is untreated except for the sewage from a military establishment located near Government Island.

(4) High concentrations of the various pollutants are, for the most part, restricted to small areas along the bank of the river below the source of pollution. The wastes are diluted quite rapidly, but the river current prevents their being readily dispersed across the main channel of the river.

(5) Concentrations of pulp mill wastes equivalent to 100 parts per million or more of the sulfite digester liquor containing 10 per cent total solids are present in Camas Slough, below the mouth of Camas Slough for about three miles, along the Vancouver waterfront below the outfall of the pulp mill and in the vicinity of and below the outfall of the pulp mill west of Longview.

(6) The waste sulfite liquor exerts an oxygen demand which reduces the dissolved oxygen concentration of the river water in the vicinity of and for several miles below the pulp mills at Camas, Vancouver and Longview, Washington.

(7) Oxygen concentrations below the minimum of 5 parts per million set by the Washington Pollution Commission exist within Camas Slough and Multnomah Channel from the latter part of August to October.

(8) The industrial wastes and sewage contained in the Willamette River are almost completely stabilized by the time they reach the Columbia and do not exert any appreciable oxygen demand on the latter river. Willamette River water, however, contains such a low dissolved oxygen content that it reduces the oxygen concentration in the Columbia more than all of the other sources of pollution combined.

(9) The present volumes of sewage and plant wastes from the Kraft mills do not exert an oxygen demand sufficient to cause any pronounced oxygen depletion of the river water.

(10) The biochemical oxygen demand of the water at Puget Island indicates that stabilization of all wastes is nearly complete at that point.

(11) The water at Puget Island contains approximately 2 p.p.m. less oxygen than the water at Lady Island. This depletion is nearly constant throughout the year. During the summer months this represents a depletion of about 37 per cent of the dissolved oxygen available above the 5.0 p.p.m. allowable minimum.

(12) The Columbia River reached a maximum temperature of slightly over 22° C. in August, 1941 and a minimum approaching 0° C. in January, 1942.

(13) The water of the Columbia River normally has a pH of nearly 8.0. This value is lowered only slightly in areas containing relatively high concentrations of waste sulfite liquor.

(14) The Willamette River at its confluence with the Columbia has a pH varying between 6 and 7.

(15) A slime growth present in certain areas of the lower Columbia River seriously handicaps fishing operations.

(16) The slime was identified as a strain or starins of Sphaerotilus, a filamentous, sheath-forming fungus.

(17) Sphaerotilus occurs in greatest abundance within Camas Slough, immediately below the outfall of the pulp mill. It also occurs in great abundance near and below the outfall of the pulp mill just west of Longview. The slime grows attached to objects along the Washington bank of the river from the mouth of Camas Slough to a point almost opposite the mouth of the Willamette River.

(18) Sphaerotilus grows best during the summer and early fall when water temperatures are at a maximum. During the winter months growth of the organism practically stops.

(19) On the lower Columbia River sphaerotilus grows only in places where the concentration of waste sulfite liquor is 50 p.p.m. or greater.

(20) Sphaerotilus grows best when the concentration of waste sulfite is 400 to 500 p.p.m. and the temperature is at a maximum (21° C.).

(21) Kraft digester liquor (black liquor) produces growth of sphaerotilus almost equivalent to that produced by similar dilutions of waste sulfite liquor.

(22) Undiluted synthetic sewage produces a growth of sphaerotilus equivalent to that produced by waste sulfite liquor in a concentration of 400 p.p.m.

(23) Waste sulfite liquor was fractionated into three fractions: a. inorganic salts; b. calcium lignosulfonate; and c. the sugars and related compounds. These fractions were tested experimentally to determine which supplied the nutrient material promoting the growth of sphaerotilus. The sugar fraction was the only one producing abundant growth.

(24) Waste sulfite liquor and specifically the carbohydrates contained in the waste liquor is the cause of the growth of sphaerotilus in the Columbia River.

(25) Masses of sphaerotilus break loose from their base and float downstream. These masses catch on fishermen's nets and cause sliming or fouling which decreases their efficiency and at times make it impractical to fish.

(26) Fishing operations are inhibited by the slime from Camas, Washington to the mouth of the Columbia. Fishermen above Camas are not affected by sphaerotilus at any time. In the lower part of the affected area, the fishermen are bothered only intermittently.

(27) Steelhead trout, chinook, silver and chum salmon spawn in the Washougal River, and shad spawn at the mouth of the river or head of Camas Slough. These fish must pass through the high concentrations of pulp mill wastes in the slough in order to reach their spawning grounds, and their progeny must return through the same area. Although concentrations of waste sulfite liquor sufficiently great to block the migrations of these fish do not exist completely across the slough at the present time, a potential threat to these runs does exist.

(28) A portion of the smelt run which ascends the Cowlitz River to spawn passes through wastes discharged from the pulp mills at Longview. Present concentrations of these wastes are not sufficiently great to threaten this run of fish.

(29) During the months of August, September and October, the oxygen content of the waters in the upper part of Multnomah Channel is at a level sufficiently low to be lethal to aquatic life. This low oxygen content is due to the presence of water from the Willamette River which is nearly void of dissolved oxygen. Important runs of shad occur in the channel during early June.

(30) There is no evidence to justify the belief that pollution of the main Columbia River has decreased the runs of salmon.

(31) The Columbia River is used as a source of industrial

water supply at Longview and, at times, at Camas. It is also used as a source of drinking water at the Longview Fiber Company and at Wauna, Oregon. In all cases, the water is given adequate treatment.

(32) Bacterial counts indicate that, with the possible exception of the Oregon side above the Interstate Bridge, swimming in the Columbia must be considered as dangerous.

(33) The Columbia River is not at the present time grossly polluted by sewage, but nowhere should the water be used for drinking unless adequately treated by filtration and chlorination.

(34) It is recommended that the pulp mills at Camas, Vancouver and Longview, Washington using the sulfite pulping process take steps to accomplish more effective and immediate dilution of their waste sulfite liquor. At no place in the river should the concentration of waste sulfite liquor (containing 10 per cent total solids) exceed fifty parts per million. Since sphaerotilus does not grow well in places where the concentration of waste sulfite liquor is below 50 p.p.m., it is expected that adequate dilution would largely eliminate the present slime nuisance.

Port Townsend Men Again Go "Crabbing"

● With the end of dim-out regulations on the Pacific Coast, "crabbing" has again become a popular pastime among men in the Olympic peninsula mills. To the uninitiated, it may be explained that the big Dungeness crabs are caught after dark during low tides by rubber-booted hunters carrying lanterns. Fair game must be at least six inches across the back.

The crabs apparently have thrived in the waters around the Crown Zellerbach kraft mill at Port Townsend, Wash., where Leonard Ziel, assistant resident manager and former University of Washington star half-back, caught 12 in one evening.

Substantial catches also were reported by Clare Bunge, technical supervisor, Beverly Smith, powerhouse technician, and Harry Pollard, chemist.

Krache Invalided Home

Technical Corporal Joe Krache, of the U. S. Army engineers, has been invalided home to Hoquiam, Wash., after ten months' service in New Caledonia in the Southwest Pacific. Corp Krache, on leave from the Hoquiam division of Rayonier Incorporated, where he was bleacherman, suffered a back injury.

Niles Anderson and Supply Men Are Postwar Planners

● Niles M. Anderson, vice president of Marathon Paper Mills of Canada, Ltd., Canada Permanent Building, Toronto, Canada, is one of twelve superintendents named to a Joint Postwar Planning Committee representing the American Pulp & Paper Mill Superintendents Association and its industrial affiliates. Mr. Anderson was formerly of Tacoma and Bellingham, Wash., where he was an executive of mills.

The committee, appointed by Stanford G. Blankinship, president of APPMSA, also includes representatives of a dozen industrial affiliates, including W. L. Barker, Improved Paper Machinery Corp.; F. K. Becker, Bird Machine Co.; W. W. Cronkhite, General Electric Co.; James Foxgrover, Papermakers Chemical Co.; O. F. Lane, DuPont Pigment Dept.; Harry Moore, Beloit Iron Works, and Harry G. Specht, Eastwood-Neally Corp.

Ben Pasero Dies

Ben Pasero, 34, died at St. Helens, Ore., on November 26. For 17 years he had been with the St. Helens Pulp and Paper Company, his last position being director of personnel.

Camas Employes Sponsor Golf Course Purchase

● A projected community development which nears successful termination in the Camas-Washougal, Wash., area concerns the purchase of the 40-acre Orchard Hills golf course, recently offered for sale, and proposals for building a clubhouse. The Crown Willamette Golf Association, an organization composed mainly of employes of the Crown Zellerbach Corporation Mill at Camas, is the sponsoring body.

The golf association has formed a non-profit corporation, capitalized at $25,000, in which membership certificates are being sold for $100 each. Of the 250 original memberships, 30 are reserved for later purchase by persons now with the armed forces. Of the money to be raised, $16,000 will be devoted to the land purchase; the remainder is to be utilized for later improvement, including the club building.

Major Lewis On Visit

Major Clark Lewis, who before receiving his commission in the U. S. Army was a shipping clerk with the Pulp Division, Weyerhaeuser Timber Company, Longview, Wash., recently returned on furlough from Alaska for a short visit to Longview.

NEW HONOR ROLL BOARD OF LONGVIEW FIBRE COMPANY, Longview, Wash., showing 232 names of employes on leave in the armed services. The photograph shows only the part of the board taken up with names up to the present time. There are now more than 240 in the armed services. Each of them has received a letter from the company assuring him of a return to employment as soon as the war has ended.

Powell River's Log Salvage Program May Require New Sawmill Design

EXPERIMENT in the utilization by Powell River Company of small logs from logged off lands of Comox Logging & Railway Co. on Vancouver Island has reached the point where technical experts of both companies are working out plans for transporting and processing the material in large volume.

So far only a small trial shipment —the equivalent of two or three truck loads—has been sent from the logging camp to the pulp and paper mill, but the time is approaching when it will be possible to get a considerable volume of logs on their way to the plant.

Meantime a cost analysis of the experiment has been worked out by Angus P. McBean, assistant forester of the British Columbia forest service, and this has demonstrated that utilization of logging residue and slash that would otherwise be wasted has a good chance of economic success. If the experiment is fully satisfactory, this salvaged pulpwood may provide a considerable proportion of the raw material used by Powell River Co.

Just now, it is almost impossible to obtain the required equipment for any large-scale mechanical expansion that use of small logs may warrant at Powell River. There is every likelihood that eventually Powell River's sawmill may have to be almost completely re-designed to handle this material efficiently.

In the meantime the company has decided to erect a small log sawmill adjacent to the main mill on the wharf just to the north of the mill building. It will be a simple plant consisting of little more than a couple of cut-up rigs for handling the logs as they are released from the bundle. Capacity of this mill will be only about 20,000 feet daily, but a simple adjustment will double the capacity. Its main value to the company for the present will be to determine by experiment the most effective and economical way of handling the logs from Ladysmith and from other areas where the log sizes are less than standard.

Later on, when the main sawmill is adjusted on a permanent basis to meet the new requirements Powell River Company plans to install a large hydraulic barker.

THE LOG DUMP AT LADYSMITH, B. C., OPERATIONS of Comox Logging & Railway Company. Here is where possible new methods of rafting or towing salvaged pulpwood logs will be developed in connection with the COMOX-POWELL RIVER COMPANY wood salvaging project. Note how the log dump is protected by discarded tractor tracks—thus utilizing waste metal.

Only 250,000 Cu. Ft. Yarded

Powell River officials are not the only ones with a problem on their hands. Comox Logging experts are now devising a method of transporting the small logs from the booming grounds at Ladysmith, B. C., to the pulp mill. So far, only about 250,000 cubic feet of this material has been yarded. Some time this winter, this and additional material will be trucked out over the logging company's hard-surfaced road to tidewater. The present idea is to load the logs out in bundles—possibly 100 logs to the bundle, running from about 1300 to 1800 cubic feet each and with a maximum length of about 50 feet. Half-inch line will bind the bundles in two or three places and there lines, will be clamped tight by a specially made device operating on a principle similar to that of the common clothesline clamp, with a clamp holding the attachment in position on the line until the dog is released. A bunk load is made up of the longer logs, which are also used as side logs, the shorter stuff being placed in the middle of the load.

The bundles are taken to tidewater in that form and dumped. The ideal way to boom them is still being sought, but it is expected that cable swifters will be used over and under the boom so that when completed the shipments will resemble a miniature Davis raft. When the boom reaches Powell River, each bundle will be pulled sidewise by winch and line onto a deck, the clamps released and the individual logs will be fed to a conveyor. The logs will be cut into 32 foot blocks, to conform with the requirements of the grinder, and logs over 12 inches thick will be split. From there on it becomes a question of finding the

Representatives of Powell River Paper Company will discuss the experimental developments in the salvaging of small logs from logged over lands for pulpwood at the Pacific Logging Congress, to be held at the Olympic Hotel in Seattle January 19-20.

VANCOUVER ISLAND AREA where the Comox Logging & Railway Company is carrying on the important experiment in salvaging small logs on its logged off lands for use as pulpwood by the Powell River Company. This pulpwood comes from the area just west of Ladysmith where Comox has trucking operations. It will be towed in some manner from Ladysmith almost due northward across the Straits of Georgia to Powell River, B. C. The new railway shown on this map taps new extensive Comox logging operations in the Nanaimo Lakes area but no pulpwood is coming from there.

best pulp mill practice for dealing with the material.

Harry Andrews, control superintendent of Powell River Company, tells PACIFIC PULP & PAPER INDUSTRY that the small experimental shipment already put through the mill proved satisfactory and that it was readily converted into pulp. One of the problems that will have to be dealt with when the company starts to handle this small log supply in volume is to work out an effective method of sorting by species, as it is probable that while hemlock may form the bulk of the shipments there will be a certain amount of balsam and spruce, the other major pulp species, and also fir, cedar and possibly pine. For kraft manufacture, for instance, it will be possible to use a certain percentage of cedar. Sulphite and groundwood pulp, of course, have different requirements and most of the segregation will have to be done before the logs are fed into the grinders.

B. C. Sawmills May Be Able to Utilize All Saw and Shingle Mill Waste

● Eventually it may be possible for the pulp and paper industry of British Columbia to eliminate sawmill and shingle mill waste completely by converting unusable material into pulp or hog fuel.

As a preliminary step, Powell River Company has installed its own hogging equipment on the waterfront at its mill in Powell River, B. C. Now the company is able to accept delivery of "unhogged" refuse from shingle and sawmills and do the hogging job itself.

A new wide hopper-type conveyor, capable of handling all normal saw and shingle mill refuse, has been completed at Powell River. In addition, the company designed and financed conveyor machinery installed at the Red Band shingle mill operated on the Fraser river by Bloedel, Stewart & Welch and the Northwestern Cedar Products mill in Vancouver. Both these plants supply fuel to Powell River. The conveyors were designed by a Powell River staff, headed by Resident Engineer Harold Moorehead.

This is one phase of the general research and development program being carried out under the direction of Control Superintendent Harry Andrews. The waste from lumber mills is regarded as a source of pulpwood, particularly that re-

HAROLD MOOREHEAD, Resident Engineer, Powell River Company, who was in charge of designing of new hog fuel equipment.

sulting from the cutting of hemlock, balsam, and spruce, but at the time it is realized that such material is a source of hog fuel that can be readily used for process steam.

The company's technical staff is now engaged in an analysis to ascertain the amount of sawmill slabs and edgings available for pulpwood recovery and the amount of hog fuel that might be incidental to this operation.

As a result of installation of hogging equipment at Powell River, the two Vancouver cedar operations have been able to discontinue operation of their refuse burners. This has reduced the fire hazard at the two mills in the Vancouver area.

Another feature of this Powell River development is the utilization for the first time of complete shipments of cedar fuel. Powell River engineers expect that as a result of the use of this hogged fuel they will be able to save more than 2,000 barrels of fuel oil monthly.

Capt. Keith Frampton Killed In Bougainville Air Battle

● Captain Keith Frampton, U. S. Army Corps, pilot of a B-24 bomber, was killed in action October 10 in the Battle of Bougainville, one of the big battles of the year in the Southwest Pacific.

Captain Frampton, on leave of absence from the St. Helens Pulp & Paper Company, St. Helens, Ore., was the son of Charles G. Frampton, superintendent of the Fernstrom Paper Mills, Inc., Pomona, Calif., and the chairman of the Pacific Coast Division of the American Pulp & Paper Mill Superintendents Association.

A report of the now historic battle, in which Americans fought for a foothold on B gainville Island, indicated young Captain Frampton was killed by the Japanese while parachuting from his burning plane and when he had no chance to defend himself. According to accounts from witnesses, his plane was seen spiraling in flames to the water, where it disappeared. Five men who had jumped from the plane were fired upon by the Japanese airmen as they were parachuting to the water.

Captain Frampton is also survived by his widow, the former Eileen Meagher, of Boise, Ida. They were married little more than a year ago in Tucson, Arizona, while he was stationed there. After he went to the Pacific theater of war, the young Mrs. Frampton entered nurses training in Portland, Ore.

Young Frampton left the St. Helens mill in January, 1942, to join the air corps. He received his training at halt a dozen air bases in various western states. He became a second lieutenant in June of 1942 and became a first lieutenant in December, 1942. His promotion to captain came this year while on the war front.

His father, popular leader of the superintendents on the coast and long active in that organization, visited his son early last February in California, just before young Frampton flew his B-24 to Honolulu en route to the scene of battle.

DIED FOR HIS FLAG AND HIS COUNTRY—CAPT. KEITH FRAMPTON, PILOT, U. S. ARMY AIR CORPS, on leave from St. Helens Pulp & Paper company, "killed in action" in the South Pacific. His father, CHARLES G. FRAMPTON, Superintendent, Fernstrom Paper Mills, Inc., Pomona, Calif., is Chairman of the Pacific Division, American Pulp & Paper Mill Supts. Assn.

12 Powell River Men Give Lives for Their Country

● Powell River Company's roll of honor in this war now comprises the names of twelve men, former employes of the big British Columbia pulp and paper organization, who gave their lives for their country.

Here is a list of the twelve Powell River men killed on active service (the positions they held in the mill indicated in parenthesis):

Sergeant Frank McMullen (laboratory), flying accident in England; Flight Sergeant Lucien Brooks (office), killed while leading a flight of Hurricanes over Malta; Flight Sergeant Bill Daubner (labor division), killed while leading a coastal patrol flight over the North Sea; Pilot Officer Willie Gilmour (office), and Pilot Officer John Morris (paper machines), killed in flying accidents; Sergeant-Pilot Jack Woodruff (sawmill), killed in raid over Germany; Pilot Officer "Hob" Marlatt, crashed in fog over England; Pilot Officer Bert Carey (office), killed while ferrying bombers over the North Atlantic; Flight Sergeant "Bud" Daubner (millwright)„ killed in flying accident; LAC J. M. Bell, killed in flying accident; Pte. S. Zilnic, killed in Sicily; Private H. Drayton (labor division), killed in mortar explosion in England. (Marlatt, Bell and Zilnic were not directly employed by the firm before joining the forces.)

All but Zilnic and Drayton were in the Royal Canadian Air Force.

Fibreboard Employes Buy Bonds Up to 13% of Pay

During the recent Third War Loan drive employees of the Fibreboard Products Inc., nine plants and head office participated to the extent of 86% of the employees.

The total amount of payroll deductions for the purchase of War Bonds during the month of September was 13% of the total payroll.

Stockton Division had the highest percentage of deductions for War Bond purchases of any of the divisions, with 91% of the employees of the Stockton Division participating.

A competitive spirit was aroused in the various departments at certain divisions, which tended to greatly increase the War Bond purchases at these divisions. Each Fibreboard plant has an employee War Bond committee whose duty is to encourage sale of War Bonds.

In view of the large turnover in personnel the War Bond Sales Committees feel that the results obtained are very satisfactory.

The additional subscriptions made by Fibreboard employees over and above the regular payroll deductions during the Third War Loan drive amounted to $75,000.

Cigarets For C-Z Men

Two cartons of cigarets for each of the former employes in armed service from the West Linn, Ore., mill of the Crown Zellerbach Corporation have been sent out by Oregon City local No. 58 of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers. Christmas cheer is thus being carried to 119 service men whose addresses are known. Forty-one others had no known addresses.

"Beacon Bill" Welsh Assists War Chest Drive

William D. "Beacon Bill" Welsh, public relations, Crown Zellerbach Corporation, San Francisco, made his annual pre-Christmas pilgrimage back to his old stamping ground in Port Angeles, Wash. —but it was for a different purpose than in the past.

For 20 years he had conducted the Beacon Bill "friendly blackmail" Christmas fund-raising column in the Port Angeles News during the weeks preceding Christmas. He began the column and carried it on for many years while he was editor of the News and continued to do this Christmas chore during the past four years with the C-Z organization. The funds raised took care of hundreds of needy cases in the area and bought hot lunches, eye glasses and dental work for school kids.

This year the traditional campaign was dropped. Instead, Mr. Welsh directed publicity for the Clallam County War Chest campaign during his customary pre-Christmas visit.

Lt. "Bill" Zellerbach Back From Italy

Lt. (jg) William "Bill" Zellerbach, USNR, son of Harold L. Zellerbach, president of the Zellerbach Paper Company, San Francisco, is back home enjoying a holiday furlough, after taking part in the attack on Sicily and Italy.

Weyerhaeuser Wood Preparation Savings at Everett Now 13%

THE Weyerhaeuser Timber Company has made a slight upward revision of estimated wood savings in the Everett, Wash., unbleached sulphite pulp mill resulting from the installations of new wood preparation equipment, including its whole log hydraulic barker and whole log chipper.

Declaring "the barking and chipping unit has been in operation long enough so that actual savings can be evaluated," Russell J. LeRoux, resident manager of the Everett mill, told a meeting of eastern mill superintendents at Kalamazoo, Mich., on November 18 that the entire wood preparation set-up is now making "an annual wood saving of approximately 23 per cent or 20,160,000 feet of logs."

When the new whole log barker and chipper plant was described in detail in the May, 1943, issue of PACIFIC PULP & PAPER INDUSTRY, R. B. Wolf, manager of the Pulp Division of the Weyerhaeuser Timber Company, made a preliminary estimate of savings at from 18 to 20 per cent (Saved by the barker-chipper installed early this year and the "chemical" cleaning plant installed more than two years ago).

Pointing to the possibility that the entire sulphite pulp industry of Washington and Oregon state could save 17 per cent by hydraulic barking and whole log chipping, Mr. LeRoux visualized a prospective saving of 188,000,000 feet of logs in the two Northwest states in one year. This is nearly twice the amount of wood being used in the Everett mill alone this year.

The Michigan Division of the American Pulp & Paper Mill Superintendents Association sponsored the meeting which was held in the Park American Hotel in Kalamazoo. About 50 persons were present including Mr. LeRoux's father, O. L. LeRoux, manager of the Northwest Paper Company, Brainerd, Minn. The chairman was Glen Sutton, superintendent, Sutherland Paper Company, Kalamazoo.

A model of the hydraulic barker, made at the Everett mill on a scale of one-half inch to the foot, was exhibited (see pictures on the following two pages), Also a motion picture, depicting pulp manufacturing steps from the woods to the freight car, was shown. This movie included views of the Everett barker and chipper in operation.

New Era of Wood Preparation

● "Wood conservation by hydraulic barking and whole log chipping brings a new era of wood preparation to the west coast pulp industry, and a significant advance in wood utilization," said Mr. LeRoux. "It is an indication of what private enterprise can do to solve its problems and continue its forward advance on one of our nation's foremost industries."

At the outset of his talk, the Everett mill manager stressed that the new Everett developments were all part and parcel of the general overall Weyerhaeuser policy of forest management and conservation. The old order of "cut out and move on" no longer fits in the present-day scheme of forestry, he said, and in a reference to tree farming, he remarked that "owners are thinking of this great natural resource less and less as so many thousands of feet (of wood) and more and more as so many acres of land."

"To insure future forest growth on cutover lands," he said, "it is our policy to leave sufficient trees of seed-bearing size so natural re-seeding may take place."

RUSSELL J. LE ROUX, Manager, Everett, Wash., Mill, Pulp Division, Weyerhaeuser Timber Company, at Superintendents Meeting in Kalamazoo, Mich.; "Wood conservation by hydraulic barking and whole log chipping brings a new era of wood preparation to the west coast industry, and a significant advance in wood utilization."

Mr. LeRoux also pointed out that the chemistry of wood cellulose and lignin has opened up new opportunities for timber utilization.

Entering into a discussion of the new barking and chipping plant, he described the equipment and the operation, which were fully described and illustrated in the last May Annual Review Number of this magazine.

Barks 40-in. Log In 30 Sec.

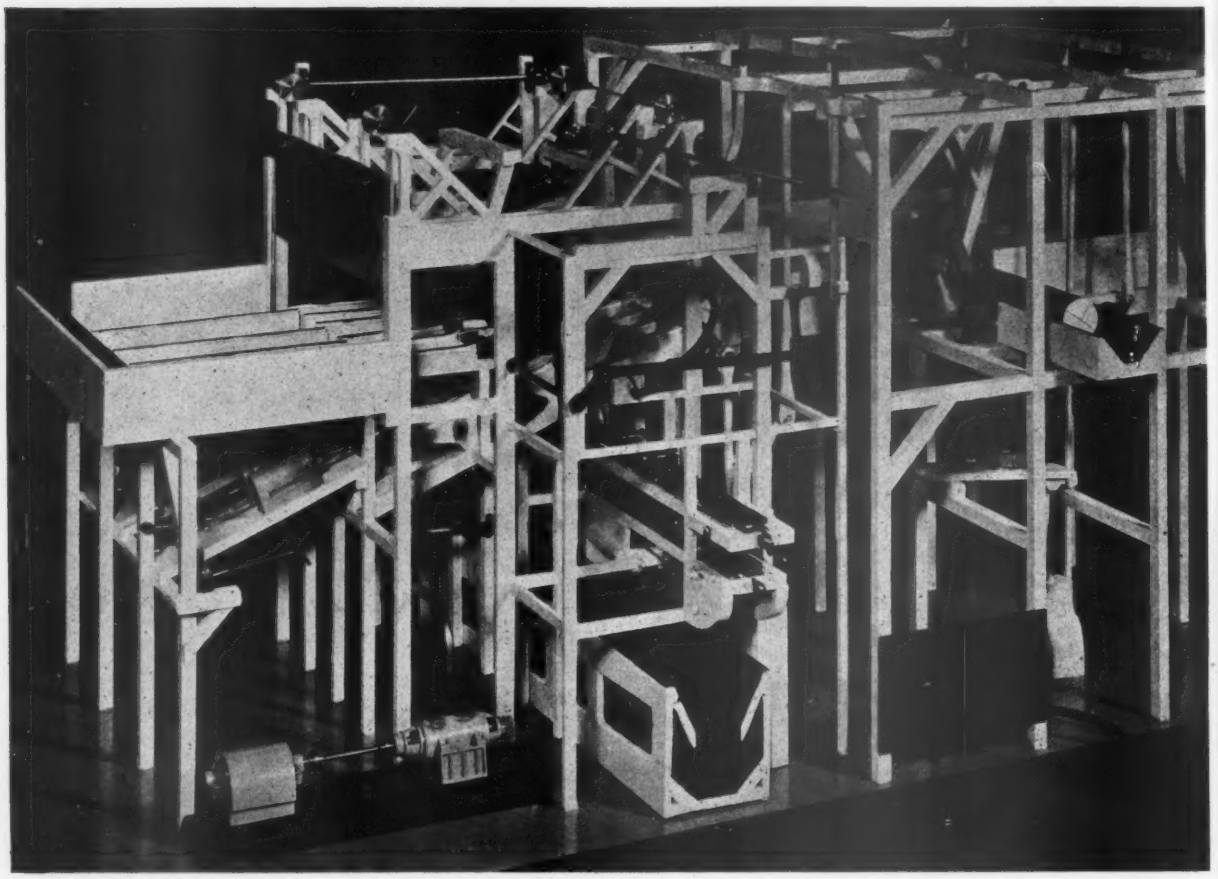
● "A log of 40-inch diameter and 20 feet long can be barked in less than thirty seconds and after reaching the chipper can be reduced to chips of standard size in about the same time," he said. Operating eight hours a day, the unit is capable of producing sufficient chips for manufacture of 275 tons of sulphite pulp daily, which is the capacity of the Everett mill.

In his discussion of savings, Mr. Le Roux said:

"The immediate saving to be effected was of course in manpower. The Everett mill originally had 121 men engaged in wood preparation. When the chemical cleaning plant went into operation it was no longer necessary to operate the battery of 24 knot borers in the chip plant so the crew was reduced to 97 men. A further reduction of 77 men was made when the barker and big chipper were placed in operation, as only 20 men are required to operate this new unit. The latter reduction could not have transpired at a more opportune time as men were made available for use in other vital war industries at a time when the manpower shortage was critical on the Pacific Coast.

"Prior to the inauguration of the hydraulic barking process of wood preparation (and 'chemical' cleaning plant), the Everett mill used 1,032 feet of logs per A.D. ton of sulphite pulp. The experience to date with the new installations averages 790 feet of logs per A.D. ton of pulp. This saving might better be reflected by making a comparison between the two methods on a yearly wood usage basis.

"On the basis of 1,032 feet of logs per A.D. ton of pulp, the production of 96,000 tons per year requires 99,072,000 feet of logs.



SCALE MODEL OF THE WEYERHAEUSER WHOLE LOG HYDRAULIC BARKING PLANT which was completed only this year at the Everett, Wash., mill of the Pulp Division, Weyerhaeuser Timber Company. This model, which stands about four feet high, was constructed recently at the Everett mill.

The model was constructed on a scale of one-half inch to the foot.

An idea of the proportions may be obtained by comparing this photograph with the numerous photographs and drawings of the barker published in the May, 1943, Annual Review Number of PACIFIC PULP & PAPER INDUSTRY.

This side of the model faces the log pond and at the extreme right a log is shown in the top section of the log haul, after being brought up from the pond. To the left of the log is the model of the 108-inch swinging cutoff saw which reduces logs to about 20-foot lengths (the barker takes logs up to 26 feet and 72 inches diameter).

Directly below the saw is shown the switchboard operating the barker. To the left of the saw is shown another log in the barker (a better view of the barker mechanism itself is shown on the opposite page). Indexing equipment, including a model of a 67GPM radial piston pump, is above this log. Beneath the log is shown the perforated conveyor which drains off water and carries bark to the hoghouse.

In the lower left hand corner of this picture, models of the pump machinery are plainly shown. These two objects are (left) 1,000 H.P. Westinghouse squirrel cage induction motor for driving the pump and (right) a seven stage pump (3550 R.P.M.) which supplies water for the barker.

In this model, the indexing equipment and the nozzle carriage, which is below the log in the barker are motorized by a small electric motor. All other working parts are hand-operated in the model.

"On the basis of our present experience of 790 feet per ton of pulp, the same tonnage of pulp can be produced from 75,840,000 feet of logs.

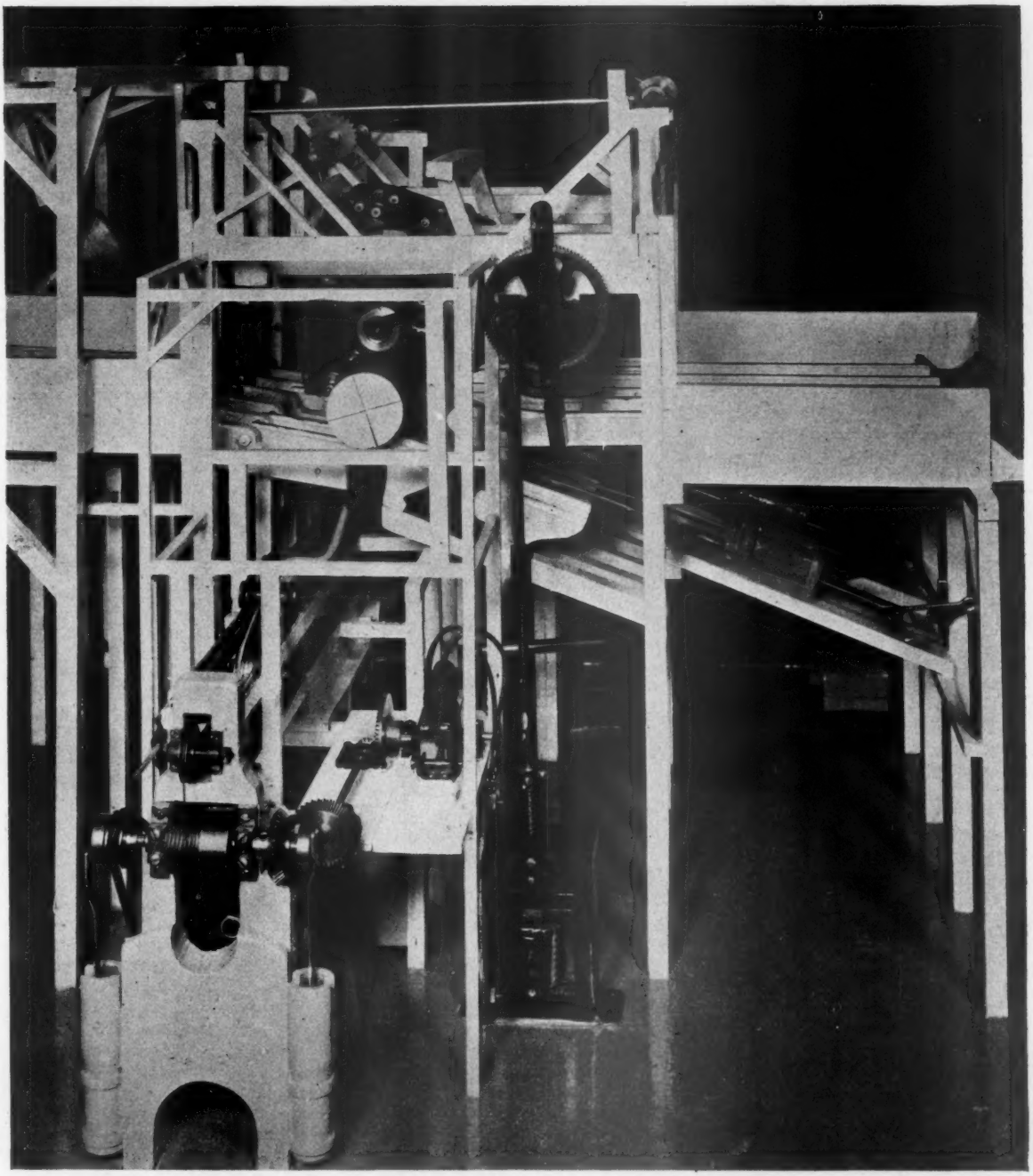
Saves 20,160,000 Ft.

● "This represents an annual wood saving of approximately 23 per cent or 20,160,000 feet of logs. The original 30 per cent wood and bark loss has now been reduced to between 7 and 8 per cent. The waste now represents only the bark which is removed during the barking process.

"The 23 per cent saving made in the Weyerhaeuser Everett mill which produces pulp for the market would not be realized in the average mill on the Pacific Coast; the reason being that this mill was concentrating on cleanliness and, therefore, was breaking down the log so as to better remove dirt producing materials such as knots and inner bark seams.

"Under normal conditions, when chlorine is once more available, the shrinkage due to 'chemical' cleaning would reduce the pulp yield approximately 3 per cent. Further, the knot boring losses and extra saw kerf would operate to reduce the saving to be made by the average mill to approximately 17 per cent over all. Obviously, the same would be true of any mill producing bleached sulphite which, in effect, has always 'chemically' cleaned its pulp.

"The wood saving effected in this one mill if multi-



COMPLETE SCALE MODEL OF THE WEYERHAEUSER WHOLE LOG HYDRAULIC BARKER. This picture of the model is taken from the opposite side to the one on the preceding page, therefore the platform where logs arrive from the pond is behind the cutoff saw, shown at extreme left of the above photograph. The log in the barker and barker mechanism are plainly seen to the right of the saw.

Against the top of this log is the indexing chain on structural steel arms. These hold the log down and against four steel knees set at an angle of 20 degrees from the horizontal. Below the log can be seen also, the nozzles, carriage and hose. The indexing chain rotates the log in even increments while the barking is performed through two traveling nozzles with sprays overlapping for a cut of about seven inches wide.

Indexing equipment and nozzle carriage are the only motorized parts of the model.

In the actual barker, water strikes the log with a pressure of 1400 pounds per square inch. Speed in which the nozzle carriage travels back and forth parallel to the log is governed. The knees can be set at predetermined positions, depending on the diameter of the log. Amounts of rotation of the log by the indexing chain also are governed. A twin steam engine (15″ x 13″) made by Sumner Iron Works and mounted on a structural steel base drives the nozzles' carriage. After each log is barked, four steel arms raise it over the knees and onto the platform shown to the right of the log and this leads to the big 171-inch whole log chipper.

plied by the number of other mills on the West Coast would represent a very great contribution by the pulp industry to protecting the future of its wood supply.

"Consider a saving of 17 per cent and assuming the yearly production of bleched and unbleached sulphite only, in the states of Washington and Oregon to be 1,175,000 tons, the wood required to produce this amount of pulp would be approximately 1,116,250,000 feet, figured on 950 feet per A.D. ton. On the basis of 790 feet per A.D. ton, only 928,250,000 feet would be required or a saving of 188,000,000 feet annually.

A Discussion of the Paper Shortage

By HAROLD L. ZELLERBACH*

President, Zellerbach Paper Company.

UNDER the non-descriptive title of "Revised L-120" a limitation order for the War Production Board has been with us since September 1st, and every paper salesman, paper merchant and paper manufacturer in America understands why it was written and the need for rigid adherence thereto. Fortunately for the paper industry, the printers of America also understand the necessity of L-120 as revised. Today, two months after it became effective, craftsmen with their stocks of forbidden weights and colors rapidly being depleted, are showing remarkable ingenuity in using the paper they can get—with no moaning about what they cannot have.

It is the printer, not the paper merchant, who can sell his customer on accepting change gracefully. That he is doing this is shown by reports from all over the area we serve. Bill Jones, the average customer, is taking paper restrictions in his stride. He is accepting them just as he accepted the 35-mile speed limit, reduced gasoline supply and simplified styles.

Americans are ingenious—doubly so when ingenuity is imperative. Small printers report to our salesmen that their customers are undisturbed about the paper shortage. The man who needs only billheads, checks and letterheads figures that if one type of stock is not available another will be found. A printer in Stockton had been serving one customer for years on a set of forms that employed the Hammermill signal system, using a separated color for each department; with all bond papers restricted to six colors and white a problem arose, since there were 12 forms in the set. The printer offered a solution. For the duration the customer will use forms with a large colored numeral in the outline type printed in the upper left hand corner. Not as convenient as the signal system where color helped to "locate" the form. Small inconvenience, however, when weighed against the fact that by reducing the number of colors in the line the mill is able to produce more paper to the benefit of all, with the same number of men and machine hours, plus the conservation of essential chemicals.

In the twenties and thirties the paper industry grew rapidly. Tremendous advancements were made in the use of paper in the home and in packaging. Similar advancements, less spectacular, were occurring in the printing paper end of the business. Following the lead of the textile makers, paper took on texture, finish and pattern. A sheet of paper for a book was no longer just background; it actually helped to set the tone of the production. Printers jumped at the chance to make paper a vital "part of the picture." White was no longer white alone, but blue-white or cream-white. Water-resistant papers were developed for cookbooks, plus manuals and catalogs exposed to the weather. Booklets to appeal to the fair sex were produced on paper stock having the feel of velvet in hues which no woman could resist.

HAROLD L. ZELLERBACH, addressing San Francisco Advertising Club: "Craftsmen are showing ingenuity in using the kinds of paper they can get."

Paralleling all this, tremendous strides were being made in photo-engraving and offset lithography, calling for more and more "special papers." By 1940 there was no longer such a thing as **plain** printing paper. Every type of printing paper was made for a specific end use.

Problem In Relativity

● With war, the paper industry, along with other industries, knew that change was inevitable. Prior to Pearl Harbor foreign pulp from the neutral countries was still being imported. Our entrance into the war cut off all such imports. We were now faced with having to get along with the pulp available from American and Canadian pulp mills. This would have served were it not for the fact that millions of pounds of paper are doing the office work of war. Too, tremendous quantities of paper are being used by the Army and Navy and by our allies for packaging of food, clothing, ammunition and every type of equipment needed for carrying on the war.

A man called me long-distance the other day to see if I could help him to get some heavy board to be used for protection of building parts for shipment in the domestic market. He was very greatly perturbed. He had tried half a dozen mills without success. He felt that his request was a fair one since the material was for war-workers' housing projects. Entirely fair—sure—until weighed against the need for fiberboard containers to pack "K" rations for young Americans on the march. Then, as he agreed when he thought about it, it seemed relatively unimportant how the building parts were handled.

It is more difficult to make the direct comparison when talking to the man who is producing 25,000 booklets on absentee-ism. He knows the need for pulp conservation, but he feels, and rightly, that getting the message across will inspire the homefront worker. America needs morale builders; words were never more important; the right kind of message must get through to the inner-conscience of the civilian. Let us print the booklet and sacrifice

*Partial text of an address before the San Francisco Advertising Club, November 3, 1943.

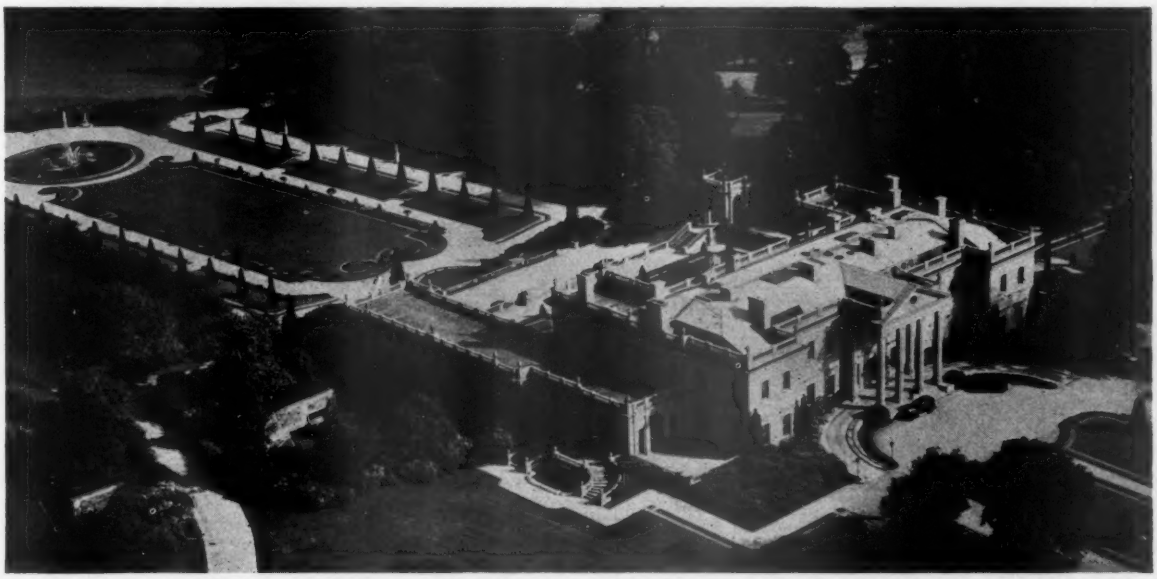
the trimmings. Let the man who is producing the booklet consult his printer before he plans a page size that waste may be avoided.

Rag Content Required

● There seems to be some confusion as to what is available in lighter weight bonds: Substance twenty pound Sulphite Bond is still available for the making of envelopes and Substance twenty and twenty-four pound weights for use on addressing machine equipment made for these weights and incapable of adjustment. They can also be used for checks. Twenty and twenty-four pound bonds are available in 75 and 100 per cent rag-content paper stock for any use.

Some buyers are also puzzled as to why a sixteen pound Sulphite Bond is more expensive today than heretofore. It is a new idea—but let us for a moment think of a mill's output as area rather than tonnage. It takes just about as many man hours and machine hours to make a certain area of sixteen pound paper as it would to produce the same area in twenty pound. However, since output is figured in terms of tonnage, more revenue would be otbained for the same area of the twenty pound stock. In order to compensate the mills for what would otherwise be an operational loss, an increase in the price of the thirteen and sixteen pound bond paper and in the lighter weight book papers has been allowed by the Office of Price Administration.

It is obvious that the War Production Board cannot police all the ramifications of L-120 or L-120 as revised, so the paper industry itself has taken over the job. It is sincere in wanting to obey the limitations in spirit and to the letter. From time to time there will be certain adjustments to correct unfair situations that may arise, but we definitely are going to have to make our paper stretch!



WHERE IS THERE A CHEMIST OR LABORATORY TECHNICIAN WHO WOULDN'T BE HAPPY DOING HIS WORK IN THESE SURROUNDINGS?
Well, the nature lovers and esthetically inclined lab experts would be happy anyway . . . This is the former home of the late E. T. Stotesbury, near Philadelphia, purchased by Pennsylvania Salt Manufacturing Company, for its technical staff. It is to be known as the Whitemarsh Laboratories and an announcement by the company states that the grounds, the exterior and much of the interior of the building will remain unaltered in adapting the home to its new purpose.

Penn Salt Acquires Famous Home for Lab.

● Leonard T. Beale, president of the Pennsylvania Salt Manufacturing Company, announces the purchase of that company of the famous Whitemarsh Hall, former residence of the late Edward T. Stotesbury, just outside Philadelphia. The purchase includes the residence and adjacent grounds. The building will be converted into a scientific research laboratory.

Mr. Beale said "it is our intention to limit the use of this property to scientific institutional purposes solely. No manufacturing or commercial operations of any kind will be carried on in it. We plan to set up in this building a staff of about 75 chemists and assistants."

Whitemarsh Hall contains about 150 rooms and has been known as one of the residential show places of this country.

To change the famous home into a laboratory alterations will be made to the interior without disturbing its familiar outside appearance. The beautiful gardens will be maintained.

Service Pins Awarded Zellerbach Officials

● November 1, 1943, marked the 35th year with the Crown Zellerbach Corporation for D. J. Galen, secretary of the organization, and on November 15 Louis Bloch, chairman of the board of directors, presented him with a 35-year service pin.

On the same occasion three Zellerbach Paper Company officials were similarly honored. L. A. Colton, vice president, purchasing department; Frank C. Stratford, San Francisco Division manager; and J. C. Ady, Oakland Division manager, were presented with their 45, 40, and 35 year pins respectively.

Following the presentation which was witnessed by a number of the executives of the Crown Zellerbach Corporation, a luncheon was served the group at the Stock Exchange Club.

Pipe Fitters Top Longfibre Bowlers

With participation in games to date varying for the individual teams from 40 to 44, standings in the Longview Bowling League of the Longview Fibre Company for the week ending December 4 follow:

Team	Won	Lost	Per cent
Pipefitters	31	13	.705
Box Plant	28	16	.636
Mechanics	21	19	.525
Supervisors	20	20	.500
Machine Room	21	23	.477
Bag Plant	18	22	.450
Pulp Mill	18	26	.409
Finishing Room	11	29	.275

The Bag Plant's team's high game total of 1058 still stands for the season. The Machine Room tops series scores with 3011. McDaniels has been bested by Plant for a single game, with 259, but McDaniels of the Mechanics has best single series with 721. Pitzlaff of the Mechanics stands alone with high average at 185 in 21 games, with a handicap of 4.

First Centrifugal Steel Foundry On Pacific Coast Begins Operations

By BLAKE JACKSON*

THE casting of molten metal into molds to impart desired size and shape to the solidified product is an art which has occupied the attention of men for centuries. It has been the source of many of mankinds implements of peace and war so long that its origin is obscured in prehistoric times. As with every other mechanical and scientific endeavor the progress of development and refinement was exceedingly slow until compartively recently. The art of making steel castings, is said to have been discovered in Germany about 1851, and the castings then produced were probably church bells.

Thus the development of steel casting practices and technique is less than 100 years old and the progress made since that time is so great as to have had the most profound effect upon all other mechanical and industrial development which has been made concurrently and is recognized as the Machine Age.

Comparatively recent in this period, however, is the use of the centrifugal casting method of making steel castings. The centrifugal process is the pouring of molten steel into a rotating mold which moves the steel from its center to the periphery by centrifugal force. This principle was first recognized by James C. Davis in 1898 but actual commercial production of castings did not become a reality until 1902 when the process was used for the manufacture of car wheels.

In recent years much more has been done with centrifugal casting, the Ford Motor Company, among others, having brought about a high degree of versatility and perfection in the method. Today there are approximately a dozen foundries in the country which are equipped to make steel castings centrifugally. Since all of these are in the East, the construction this year of a centrifugal foundry by Electric Steel Foundry Company at Portland, Ore., as an addition to this company's existing facilities, gives the Pacific Coast its only such installation.

When the construction of this plant addition was being planned, ESCO's chief engineer, H. H. Richmond, and Assistant Foundry Superintendent C. Neal Wilcox went East to visit and study the existing centrifugal plants. One of the first things they learned was that with all the experience of many men and organizations with this method of casting there had been no appreciable gathering together of data or information which would create a final source of authority on the subject. No one man knew all about it, and no one company had had experience in all its phases. Returning home, Mr. Richmond and Mr. Wilcox brought back a case full of notes and went to work assembling their equipment.

For a considerable period of time after the plant was ready to operate it was used purely for experiment and research to give practical knowledge to its operators which would augment the data contained in their notes obtained from many sources. By this means Richmond and his men have discovered and assembled a number of sound fundamentals

*Mr. Jackson, of Electric Steel Foundry Company, Portland, Ore., wrote the above article especially for this magazine.

AT ESCO'S NEW CENTRIFUGAL STEEL CASTING FOUNDRY. Upper left shows H. H. RICHMOND, Chief Engineer of the Portland company, checking the control board for horizontal pipe casting machine.

Upper right are some of the transformers in a corner of the transformer vault.

Lower left: This molder, J. P. WALYER, is in the act of drawing a pattern from the sand of the mold. This particular casting will be a log haul chair used by pulp and paper mills on log hauls.

Lower right: WALTER LUBINSKI, molder, rams up a mold in the new foundry, where much light casting work is done statistically as well as centrifugally. This mold will be poured statistically.

which govern the centrifugal process.

Advantages of New Method

● In centrifugal casting one of the obvious advantages gained over static casting is that by introduction of the molten steel into the mold under pressure there is a greater tendency for the gases and impurities to be displaced by the heavier steel and forced to the center of the revolving mass. Another very important advantage is in control of the cooling of the casting which is possible. Since, in the centrifugal method, steel is poured into the center of the revolving mold it is from the outer periphery that cooling and solidification comes primarily. Feeding of the solidifying casting during shrinkage can be done with a much smaller riser which, of course, is in the center. Thus an appreciable economy of metal is effected in the production by centrifugal means of a casting which when produced statically may have required several risers located about its circumference.

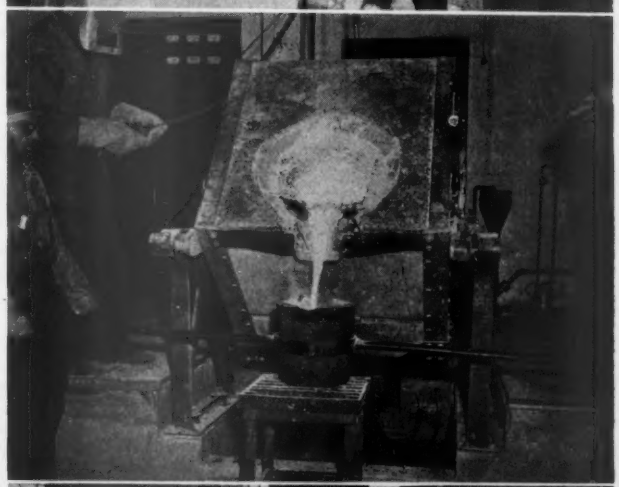
Ignoring minor considerations and avoiding proved malpractices, it is often said in the foundry that the difference between a "garden variety" of casting and a perfect one lies in the manner in which it cooled from pouring temperature and solidified.

Steel is a crystalline material and, in a liquid state, follows many of the laws that govern other liquids which form crystals on solidification. Thus, on cooling, the crystals tend to orient themselves with their longitudinal axes at right angles to the surface of the metal which is most rapidly cooled. Consequently, a casting with parallel sides, such as a plate-like shape or a bar or even a cylinder wall, has two cooling sides, two cooling directions, and therefore two arrangements of crystals. This latter results in a midsection where the two polyhedral systems join or abut, which can be seen with the naked eye in fractured sections, and by the microscope in etched sections, particularly in the austenitic steels. This line is somewhat clumsily called "centerline shrink." In cases where the liquid metal is poured very hot and the section is thick, just that may result—a shrink. In such cases, the outside surface solidifies, becomes too stiff to yield, and the inside still liquid and contracting, due to lowering temperature, cannot be filled with new metal; and minute hot tears result in a zone of porosity midway between the cooling sides.

Another phenomenon to be re-

GENERAL VIEW OF one end of the new Centrifugal Foundry Plant of ELECTRIC STEEL FOUNDRY, Portland, Ore. Centrifugal apparatus in foreground; rows of small static molds in background. ESCO's new shop is equipped with five vertical casting machines in three sizes and one horizontal type machine.

NORM BUCKNER, Furnace Operator (left), RANDOLPH SIMPSON, Metallurgist (center), and VINCENT DELUSKO, Assistant, check steel in the 650-pound capacity induction furnace with an optical pyrometer for temperature.



WALTER LUBINSKI (left) and ELMER QUADRUS, on each end of the small "shanking" ladle receiving steel from the induction furnace. They will pour it into one of the centrifugal casting machines as the next step. In the induction furnace, heats of alloy steels are prepared with rigid scientific control under supervision of the laboratory headed by

RANDOLPH SIMPSON. POURING OF STEEL into the stationary castings of this size is done by means of the small ladles as shown in this photograph.

membered is the fact that the individual crystals grow in size with the length of time required for the cooling metal to freeze. Thus, the longer it takes for the metal to solidify after coming to rest in the mold, the larger the grain size will be. In general, steel with a fine grain is superior to the same material with a coarser grain. It is, therefore, desirable to pour a casting as cold as is possible with good fluid running qualities, in order to shorten the cooling time, even though it is intended to heat treat the piece subsequently for further refinement of grain size.

The preceding considerations apply to all types of steel castings, whether produced centrifugally or statically.

Centrifugal Technique

● Centrifugal technique offers us an advantage in many ways, but probably the most valuable is in control of cooling direction. Centrifugal castings, for present purposes, can be divided into three general classes—true centrifugals, semi-centrifugals, and pressure centrifugal castings. The first, or true centrifugals, are solids (generated by revolving a plane area) which have one-directional cooling. Very few shapes are true centrifugals, if this definition is rigidly applied. A plain tube, pipe, or cylindrical shell will serve as an example. If length to diameter ratio is great and the piece cast about a horizontal axis without a core, practically all cooling of the piece has to be done from the outside surface. This is a true centrifugal. In this case, the cooling effects from the ends and that due to the dead air in the center are negligible.

When the diameter increases and the L to D ratio diminishes, a ring or tire-like piece results, which for mechanical reasons is obviously better cast about a vertical axis. In this case, when the cylinder walls are thick there still is a major cooling effect from the outside diametral wall; but, in addition, there is a lesser cooling effect starting from the ends of the cylinder. As an example, consider a tire 20″ O.D. x 16″ I.D. x 4″ long. This gives a ring having a 2″ x 4″ metal section, surrounded on three sides by sand or other material to shape the piece, all of which conduct heat away from the metal. The outer surface, 4″ long, does the major cooling, but the two 2″ end surfaces cannot be ignored. To some extent, the desired single direction of cooling can be secured by admitting the molten metal slowly and, in part, cooling it as it comes to position.

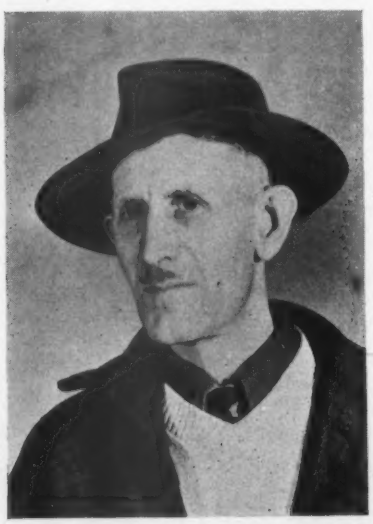
Add spokes and a hub to the above tire and change the rim section to a U-shape, and it becomes a rope sheave which would be called a semi-centrifugal casting. Obviously, the arms would be cooled from the sides and not from the ends; and our one-directional cooling would be considerably disarranged. Here, again, by proper study the desired effect could be obtained. This would be a good example of the semi-centrifugal casting.

ESCO recently filled an order for some 1″ elbows, which were cast centrifugally eight at a time. These were arranged symmetrically like an 8-armed swastika about a vertical axis, poured and fed from the center, and are a good example of pressure centrifugal castings.

While the development of ESCO's centrifugal foundry was predicated on immediate war production of aircraft parts, postwar production for West Coast industrial needs was by no means overlooked. By means of the induction type furnaces of which there are three in the new plant highly accurate control can be maintained over special analysis alloy steels. Another advantage gained by the use of this type furnace is reflected in added service to customers because it will be possible to produce heats of special alloys of as little as 650 lbs. for small emergency orders which formerly could not be made up economically in heats of less than two tons in an arc furnace.

In an induction furnace high frequency current at 800 amperes and 960 cycles per second is passed around the melting chamber in copper coils, cooled by a flow of water through them. The magnetic flux within the coil uses the metal to be melted as its secondary path of flow. Due to the high frequency of this change of cycle eddy currents are set up in the molecular structure and the metal gradually melts. The copper coils are on wooden supports and because of their water cooling they do not become heated. With this type of melting the carbon content of a steel can be rigidly maintained since there is no increase as there is in carbon arc type furnace.

The use and development of alloy steels has advanced tremendously during the war, and equipment of this kind which makes possible such a high degree of accuracy and control in alloy steel making is of great value to the war effort now and will be increasingly valuable in peacetime industry to come.



Meet FRED RODGERS, Millwright, Hawley Pulp & Paper Company, who was chairman of one of the most remarkable war bond campaigns held in any mill anywhere. We told last month about 600 employes of the mill chipped in an average of $118 each to give the Oregon City mill a total of $71,218 raised in the Third War Loan drive—more than $50,000 over regular payroll deductions.

COL. ALEXANDER RICHARD HERON of Berkeley, Calif., formerly California State Finance Director, who has been named Director of California's Postwar Planning Committee by Gov. Earl Warren.

Colonel Heron, who has returned from Washington, D. C., to the Bay area, has been the Army's Chief of Civilian Personnel for a year. He has been released from his Army duties by Secretary of War Stimson to assume his new post.

Colonel Heron is on leave of absence as a Vice-President and Industrial Relations Director of Crown Zellerbach Corporation, San Francisco.

Papermakers and Associates Meeting December 16

● The final 1943 dinner meeting of Paper Makers and Associates of Southern California was set for December 16 at 6:30 P.M., in the Roslyn Hotel, Los Angeles. A scheduled talk by Bruce Brown, Jr., chief chemist, Vernon Division, Fibreboard Products Inc., Los Angeles, was entitled, "Some Questions About Paper Board Sizing."

More facts on the meeting:

Another speaker: H. R. Erwin, of Goodyear Tire & Rubber Co., who chose for his subject the synthetic rubber situation.

Joe Hartford, of U. S. Gypsum Co., program chairman for the evening.

Wm. A. Kinney, of Flintkote Co., Pioneer Division, Los Angeles, chairman of the association, presiding officer.

D. C. Everest To Receive TAPPI 1944 Medal

● The 1944 medal of the Technical Association of the Pulp and Paper Industry will be presented to David Clark Everest, president and general manager of the Marathon Paper Mills Company, Rothschild, Wis., and twice president of the American Paper and Pulp Association.

The medal is given by TAPPI's executive committee to an individual for making outstanding contributions to the technical advancement of the industry. From September, 1940, to October, 1941, Mr. Everest was chief consultant to the Pulp and Paper Branch of the Office of Production Management, predecessor to the WPB.

The award will be made at the annual TAPPI luncheon at the Commodore Hotel, New York, on February 17, 1944.

A HARD-WORKING OFFICE GIRL STAFF at the Port Angeles, Wash., division of Fibreboard Products Inc. Our unofficial appraiser of pulchritude gives them top rating, too.

Left to right: RACHEL HOFFMAN, GOLDIE PITCHER, HAZEL BABCOCK and ALTA BREWNER.

Two Grays Harbor Fliers Killed In Plane Crashes

● The first gold star of this war for employes of Rayonier Incorporated mills goes up for 1st Lieut. Archie William McPhee, 26, Marine Corps reserve flier, killed when his plane crashed on a night flight from his base at Cherry Point, N. C.

Lieut. McPhee, employed in the warehouse of the Hoquiam, Wash., division of Rayonier, when he volunteered in early 1942, was a night flight instructor. His wife, June, accompanied him to North Carolina from Grays Harbor. He had attended the University of Washington.

Killed in action in North Africa was Technical Sgt. Donald Carpenter, top turret gunner in an army bomber, the son of F. W. Carpenter, a Rayonier employe at Hoquiam since 1929, now a watchman at the mill. A comrade in arms wrote the parents, Mr. and Mrs. Carpenter, describing how the plane was critically damaged in battle August 1 and, limping homeward, finally nosedived to the ground and exploded. Young Carpenter was buried near the city of Tunis.

Herman Joachim Is V.-P. Of Eastern Kraft Firm

● Herman L. Joachim, formerly of Los Angeles, is now the vice president of A. & P. Corrugated Box Corporation, eastern manufacturers of fiber kraft shipping containers, one of the prime war products of the industry.

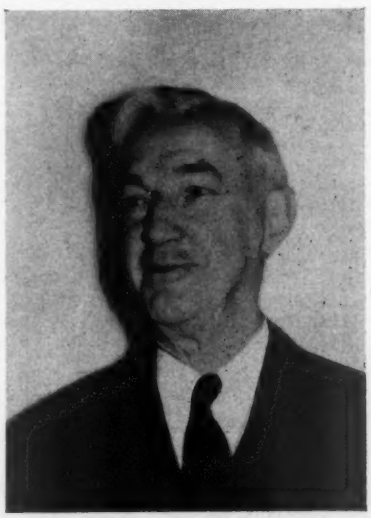
Mr. Joachim is well known in Southern California, where he was founder of the now flourishing Papermakers & Associates of Southern California. As a consulting engineer, he had offices in Los Angeles until he left for the east last spring.

His headquarters for some time were at the Boston office of A. & P. Corrugated Box Corporation, but now he writes that he is making his headquarters at the Iriquois Mill Division of the company at Thomson, N. Y. He reports that he has been under considerable pressure of work in connection with operations of A. & P. Corporation's two paper mills.

Pacific Coast Paper Mills Wins Minute Man Flag

● Employes of the Pacific Coast Paper Mills have qualified for a Minute Man flag by a big margin, with a recent campaign showing 98.5 per cent of the personnel investing nearly nine per cent of earnings in war bonds. The mill has 135 employes.

Directing the drive in the plant was Russell Roberts, shipping clerk, and working with him on the committee were Clarence Kenoyer, John Everett, Vera Wills, Cyril Portrey, George Larson and Marion Hart.



ROBERT L. EMINGER, Secretary-Treasurer of the American Pulp & Paper Mill Superintendents Assn., who is retiring after many years of devoted service in that position. A successor will be elected in February.

Visited by a representative of PACIFIC PULP & PAPER INDUSTRY at their Miamisburg, Ohio, home recently, Mr. and Mrs. EMINGER asked to be remembered to all of the Pacific Coast superintendents who made their 1941 far western tour one of the big events of their lives. They were in Longview, Wash., visiting mill superintendents there when the Japs raided Pearl Harbor.

Rayonier Mill Keeps Up Fine War Bond Record

● Employes of the Port Angeles, Wash., division of Rayonier Incorporated continue to buy more war bonds than they did even before the U. S. Government's withholding tax started biting big chunks out of their paychecks.

William E. Breitenbach, resident manager, is justly proud of the employes' record. With 100 per cent participation, the employes invested 14.04 per cent of their earnings in bonds in September during the Third War Loan campaign. But even in October they had their third highest percentage of purchases, 10.35 per cent. Here's the mill's report for 13 months:

	No. of Employes Making Deductions	Per cent Participating	Total Amount to Bonds	Per cent of Total Payroll
October, 1942	608	100%	$13,289.93	10.03%
November, 1942	622	100%	14,217.16	10.52%
December, 1942	629	100%	13,927.15	10.38%
January, 1943	616	100%	14,066.27	10.51%
February, 1943	593	100%	12,835.85	10.46%
March, 1943	555	100%	12,873.94	10.14%
April, 1943	543	99.8%	12,949.40	10.39%
May, 1943	533	99.8%	12,854.49	10.13%
June, 1943	527	99.8%	12,937.04	9.69%
July, 1943	535	99.8%	12,672.09	10.59%
August, 1943	519	99.8%	12,676.24	10.18%
September, 1943	521	100%	16,697.22	14.04%
October, 1943	545	100%	13,601.88	10.53%

In addition to the above figures for September, 1943, the Credit Union's cash sales of bonds amounted to $675.00 and the Credit Union invested $5,000.00 of its funds in bonds making an over all total of $22,372.22 for the Third War Loan Campaign from mill employes.

Acid Making In the Sulphite Pulp Industry

by A. H. LUNDBERG*

CHAPTER II -- Continued

[This installment continues Mr. Lundberg's analysis of various raw acid and recovery plant arrangements. A number of flow sheets have been prepared showing different methods in use for acid making and the control of acid composition. Flow sheets 5, 6 and 8 are for cold acid recovery. The equipment and its arrangement in each flow sheet is discussed and analyzed.—Ed.]

C. Flow Sheet No. 7.

The layout on this flowsheet is quite a departure from common practice, but is not as complicated as it may look.

Pyrites burning has been incorporated as the use of pyrites instead of sulphur should be of interest to many pulp manufacturers. It is again pointed out, however, that the source of the SO_2 supply is not important. Flow sheets Nos. 5 and 6 could also have been laid out for pyrites burning. Any cooling systems could have been used.

The important features in this layout are:

1. The controlling system of the acid combination,
2. The improved recovery system,
3. The gas holder,

which features combined, even if not separating the raw acid plant from the cooking acid plant, provide means for a uniformity of operation not found in previous layouts.

1. The controlling system of the acid combination.

Instead of a pressure tower as used in Flow Sheet No. 6, a low pressure absorption tower **(Item 15)** is used. The gas quantity used is controlled by a damper and shut-off valve **(Item 23)**. The exhaust gases are discharged to the atmosphere.

The SO_2 solution thus produced is subsequently stripped of its SO_2 content in a de-absorption tower called stripper **(Item 17)**. This 100% SO_2 gas (dry basis) set free is absorbed in acid in the absorption tower **(Item 19)**. The acid from same flows to the storage tanks **(Items 11 and 12)**.

Operating procedure can best be followed from following calculations

Data Assumed:

Raw acid per min. 180 U. S. Gals. = 1500 lbs.
Burner Gas 11% SO_2 Saturated at 95° F.
Gas temperature 95° F.
Fresh water tmeperature 66° F.
Finished acid wanted 4.60% Total SO_2
3.00% Free SO_2
1.60% Comb. SO_2

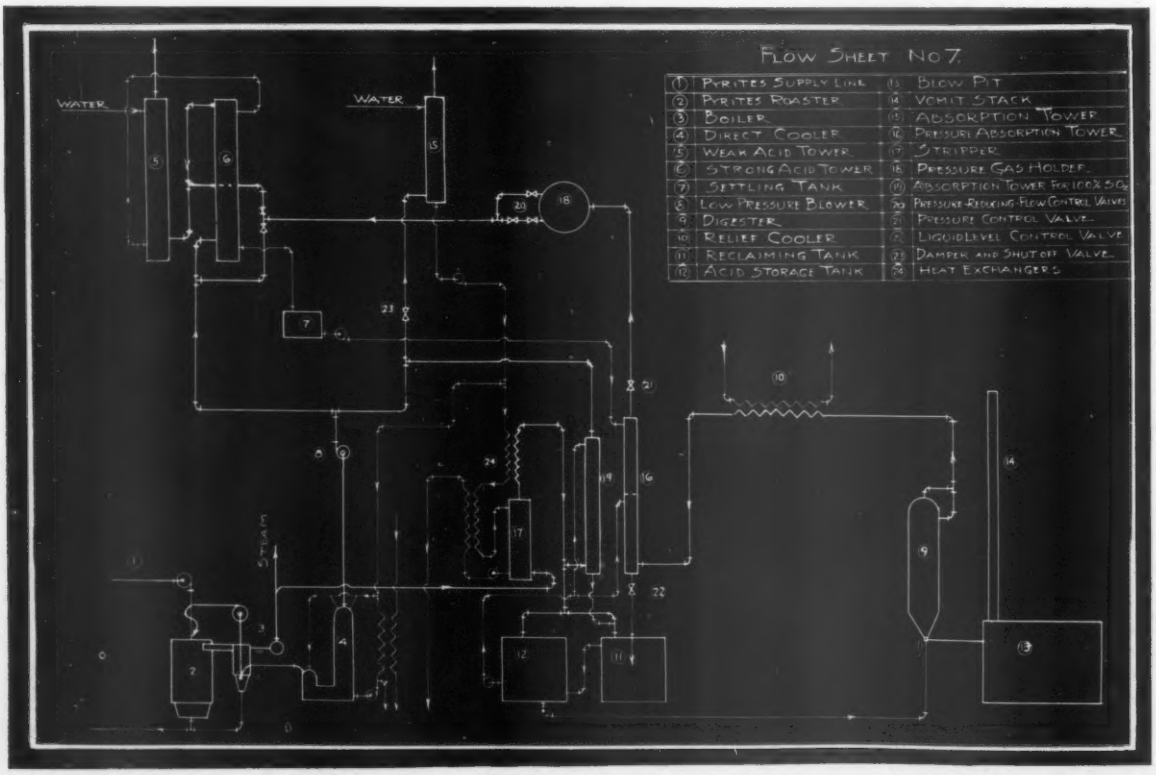
In the stripping operation is a loss of 2% SO_2.

Step 1. Make an acid in the acid plant containing 1.60% Comb. SO_2.

An acid from Chart XXIII is assumed containing
3.60% Total SO_2
2.00% Free SO_2
1.60% Comb. SO_2

Step 2.

SO_2 required for finished acid 69 lbs.



*Seattle, Washington. Mr. Lundberg is Western Manager, G. D. Jenssen Company, New York City.

SO_2 required for raw acid 54 lbs.
SO_2 required for absorption tower 15 lb.s
As a 2% loss assumed, SO_2 required 15.3 lbs.

Note: Amount of relief gas return from Gas Holder will somewhat change the above figure, as will be discussed later.

Step 3. According to Chapter 1, Paragraph II, 60° F. water can produce an SO_2 solution containing:

$$\frac{0.03 \times 760 \times 0.11}{1.97} = 1.28\%\ SO_2$$

Assuming a solution containing 1.18% SO_2 is produced, then $\frac{15.3}{0.0118}$ = 1300 lbs. water is required for the absorption tower **(Item 15)**

Radiation losses are not taken into account.

Stripping is brought to a point where only 0.20% SO_2 remains in the solution leaving the stripper **(Item 17)**.

Absorption Calculations

Amount of gas entering the absorption tower
15.3 x 5.6 = 779 cu. ft. S.T.P. Dry
÷ 0.11 = 825 cu. ft. S.T.P. Sat.
= 2.30 mols.

Heat in gas entering **(Chart II)**

SO_2	10.4% = 0.24 mols. x 9.53 =	2.29	
O_2	6.6% = 0.15 mols. x 6.96 =	1.04	
N_2	77.5% = 1.78 mols. x 6.85 =	12.19	
H_2O	5.5% = 0.13 mols. x 8.44 =	1.10	
	100.0% 2.30 mols.	16.62 x (95-32) =	1047 B.T.U.

Heat of vaporization 0.13 x 18 = 2.34 x 1038 = 2429 B.T.U.

3476 B.T.U.

Temperature of gas leaving the absorption tower 66° F.

Amount of gas leaving absorption tower
779—85.7 = 693.3 cu. ft. S.T.P. (Dry)
= 707.4 cu. ft. S.T.P. (Sat.)
= 1.97 mols.

Heat in gas leaving

O_2	7.8% = 0.15 mols. x 6.2 =	0.93	
N_2	90.2% = 1.78 mols. x 6.8 =	12.10	
H_2O	2.0% = 0.04 mols. x 8.4 =	0.34	
	100.0% 1.97 mols.	13.37 x (66 - 32) =	455 B.T.U.

Heat of vaporization 0.04 x 18 = 0.72 x 1054 = 864 B.T.U.

1319 B.T.U.

Heat in Water entering 1300 x (66-32) = 44200 B.T.U.

"Heat Solution" $\frac{15.3}{64.06}$ x 7400 x 1.8 = 3180 B.T.U.

Temperature of SO_2 Solution leaving Absorption Tower (3476 + 44200 + 3180 — 1319) ÷ 1301.6 + 32 = 70° F.

Stripping Calculations

It is assumed that the heat exchangers are large enough to heat the solution to the stripper to 194° F. and cool the outgoing SO_2 gases to 122° F.

Steam of 125 lbs. G.P. is assumed available.

Gases leaving top heat exchanger 122° F. saturated according to Table VI H_2O = 12%
SO_2 = 88%
100%

Amount SO_2 leaving 15 lbs. SO_2 = 84.0 cu. ft. S.T.P.
Total Gas leaving 84 ÷ 0.88 = 95.4 cu. ft. S.T.P.
= 0.27 mols.

Heat in gases leaving
SO_2 88% = 0.24 mols. x 9.35 = 2.25
H_2O 12% = 0.03 mols. x 8.40 = 0.25

2.50 x (122-32) = lbs. water 225 B.T.U.

Heat of Vaporization 0.03 x 18 = 0.54 x 1023 = 552 B.T.U.

777 B.T.U.

Heat in preheated solution
1301.6 x (194-32) = 210859 B.T.U.

Gas leaving top of stripper 205° F. saturated according to Table VI (estimated) H_2O = 90%
SO_2 = 10%

Total Gas leaving 84.0 ÷ 0.10 = 840 cu. ft. S.T.P.
= 2.34 mols.

SO_2	10% = 0.23 mols. x 9.60 =	2.21	
H_2O	90% = 2.11 mols. x 8.45 =	17.83	
	100% 2.34 mols.	20.04 x (205-32) =	3467 B.T.U.

Heat of Vaporization 2.11 x 18 = 37.98 x 970 = 36841 B.T.U.

40308 B.T.U.

Water condensed in cooler 37.98 — 0.54 = 37.44 lbs.

Heat of condensed water returned to stripper.
37.44 x (205-32) 6447 B.T.U.

Heat of dissolution
$\frac{15}{64.06}$ x 7400 x 1.8 3122 B.T.U.

Steam required
210859 + (1193 x X) + 6447 = 40308 + 3122 + (1301.6 + X — 0.5) (212-32)
X = 59.55 lbs. steam = 71014 B.T.U.

Liquor leaving Stripper 212° F.
1301.6 + 59.55 — 0.54 = 1360.6 lbs. 244890 B.T.U.
containing 0.02% SO_2 = .27 lbs. SO_2

SO_2 loss 1.8% of SO_2 to stripper = 0.4% of total SO_2 used

Temperature of solution leaving top heat exchanger:
Heat in solution from Absorption Tower 49537 B.T.U.
Heat absorbed in Heat Exchanger 33084 B.T.U.

82621 B.T.U.

Temperature = (82621 ÷ 1301.6) + 32 = 95.5° F.

Temperature of stripped solution leaving bottom heat exchanger:
Heat of solution from stripper 244890 B.T.U.
Heat absorbed in heat exchanger 128238 B.T.U.

116652 B.T.U.

Temperature = (116652 ÷ 1361) + 32 = 117.7° F.

For Flow Diagram see **Fig. 16.**

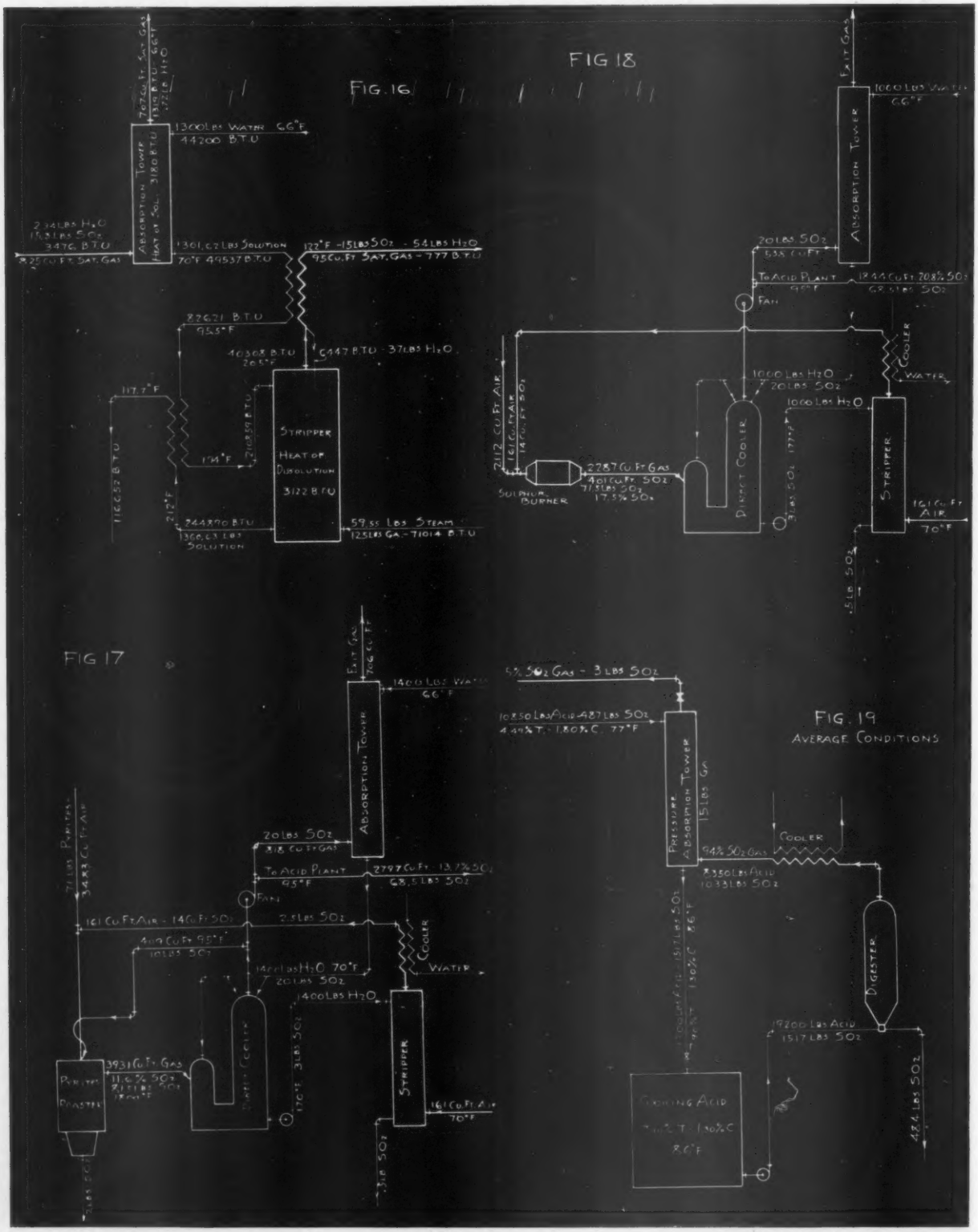
Heat Balance

Input		Output	
Water	44200 B.T.U.	Stripped Solution	116652 B.T.U.
Gas	3476 B.T.U	Gas fr. Stripper	777 B.T.U.
"Heat of Solution"	3180 B.T.U.	"Heat of Solution"	3122 B.T.U.
Steam	71014 B.T.U.	Gas fr. Absorption T.	1319 B.T.U.
	121870 B.T.U.		121870 B.T.U.

Such an installation thus requires approximately 60 lbs. of steam per minute. From cooling calculations, **Chapter 1, Paragraph VII,** under pyrites burning is found a possible steam production of 1.68 lbs. of steam per lb. pyrites (50 lbs. S). In this example approximately 69 lbs. of pyrites was roasted per minute, giving a possible steam production of about 116 lbs. per minute.

The steam demand consequently is about half the production.

If sulphur was burned also ample steam could be made available.



It should theoretically be possible to lower the steam consumption by the use of very high stripping towers.

Assuming for instance that the temperature of the gas leaving the top of the stripper equals the temperature of the incoming solution, or 194° F. which is, of course, only theoretically possible, the steam consumption will be as follows:

All other data remains the same

Gas leaving top of stripper 194° F. saturated
according to Table VI Chart I H_2O = 69.0% H_2O
S_2O = 31.0% H_2O

Total Gas leaving 84.0 ÷ 0.31 = 271 cu. ft. S.T.P.
= 0.76 mols.

SO_2 31% = 0.24 mols. x 9.55 = 2.29
H_2O 69% = 0.52 mols. x 8.45 = 4.39

6.68 x (194-32) = 1082 B.T.U.

Heat of Vaporization 0.52 x 18 = 9.36 x 981 = 9182 B.T.U.

10264 B.T.U.

Water condensed in cooler 9.36 — 0.54 = 8.82 lbs.
Heat of condensed water returned to stripper
8.82 x (194-32) 1429 B.T.U.

Steam required:

$$210859 + (1193 \times X) + 1429 = 10264 + 3122 + (1301.6 + X - 0.5)(212 - 32)$$

X = 34.8 lbs. Steam

As it is rather difficult to remove the last traces of SO_2 from a SO_2 solution, it is not considered practical nor economical to drive the stripping further than the 0.02% SO_2 used in examples.

Radiation losses have not been accounted for and consequently the steam consumption and corresponding loss of SO_2 is actually higher. The importance of the insulation of piping and stripping equipment should not be overlooked.

If considered advantageous the stripping can also be performed under vacuum. This entails a vacuum pump and the use of power, which, however, is offset by lower steam consumption.

The stripping installation at the Virginia Smelting Company, West Norfolk, Virginia, is described by L. B. Hitchcook and A. K. Scribner in Industrial and Engineering Chemistry," July 1931 (11):

"The SO_2 solution containing 1 to 2 per cent SO_2 is stripped in a tower 80 ft. high. Exhaust steam which has dropped through the turbine of a generator set from 210 lbs. to about 26 inches of vacuum is fed to the bottom of the stripper. At the bottom of the tower is a mixture of stripped liquor and condensate with approximately the equilibrium content of sulphur dioxide at 135° F. under 25.5 inches of vacuum, which corresponds to about 0.01 to 0.02 per cent SO_2. The gas leaves the top of the tower at approximately 95° F. and 26 inches of vacuum and of high humidity."

It is easy to understand that an Absorption-Stripping System offers a simple, efficient and flexible method, not only to control the acid combination, but to replenish the true free SO_2 in the cooking acid. If ample capacity equipment, such as burners, coolers and piping is available, such a system can be relied upon to meet any condition arising in a pulp mill.

Flow Sheet No. 7 shows another feature worth mentioning at this time: The cooling of the burner gases by means of a SO_2 solution.

This also is a type of stripping system as the SO_2 solution is stripped of its SO_2 content by the burner gas. The freed SO_2 mixes with the burner gases enriching its SO_2 content. By varying the SO_2 gas strength, as noted before, the acid combination is changed.

It is possible to utilize this latter method to an appreciable extent when using direct cooling only (no boilers) as shown on Fig. 17, based on following data:

Gas. Temp. 95° F.
Fresh Water Temp. 66° F.
Pyrites roasted 71 lbs. per min.
SO_2 produced 69 lbs. per min.

Referring to "Cooling of Burner Gases," **Paragraph VIII, Chapter I,** under "Pyrites Burning without Heat Exchanger," the temperature of the solution leaving the cooling tower was found to be approx. 170° F. The water requirement will be approx. 1400 lbs. per min. Assuming the solution holds 0.22% SO° at the above temperature of 170° F., the amount of SO_2 leaving the cooling tower will be about 3 lbs.

The original solution is assumed to contain 1.40% SO_2 = 20 lbs. Thus 17 lbs. SO_2 has been stripped off during the cooling operation.

Adding this amount to the original 69 lbs. SO_2, there is 86 lbs. SO_2 in the gas leaving the cooler, and the SO_2 content of the burner gas has been boosted from the original 11% to 13.3%. For further details see **Fig. 17.**

A loss of 3 lbs. of SO_2 in the effluent from the cooling tower might be considered too high, in which case said solution can be further stripped, either with steam or air.

Stripping by means of steam has been discussed above.

When stripping with air a similar tower as for steam is used. See **Fig. 17.** The amount of air required in this case is approximately 161 cu. ft. as stripping is nothing else but absorption in reverse. The SO_2 carrying air leaving the stripper should be used for combustion as primary air and the final gas is boosted to 13.7% SO_2.

If still stronger gas is wanted, further stripping of an SO_2 solution is necessary as per **Fig. 16.**

In case of sulphur burning the results are still more favorable. See **Fig. 18.**

2. Improved Recovery System.

To the recovery system has been added a Pressure Absorption Tower. The advantage lies in the previously noted fact that SO_2 gas is easier absorbed under pressure.

The system operates as follows:

The relief gases cooled in the Relief Cooler **(Item 10)** enter the Pressure Absorption Tower **(Item 16)** which tower is packed with inert material. The pressure in this tower, which may be 15 lbs., but not so high that relieving of the digester is interfered with, is controlled by valve **(Item 21)** and the liquid level by valves **(Item 22).**

As discussed earlier, the usual practice is to absorb the relief gases in the reclaiming tank acid. The reclaiming tank being a very inefficient absorption apparatus allows a considerable amount of unabsorbed gases, caused to a large extent by the inert gases in the relief gas, to escape and return to the acid plant.

When absorbing the relief gases in an absorption tower counter current to the raw acid, it is possible to absorb a larger amount of the SO_2 in the relief gas, as pointed out under analysis of **Flow Sheet No. 5,** giving a cooking acid of high free SO_2 content. An absorption tower under pressure further increases the

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possibility of absorption. For instance, in an absorption tower working under atmospheric pressure, the acid leaving the tower may be saturated at 6% Total—1% Comb. SO_2, whereas the acid, if the same tower was under 15 lbs. pressure, will be saturated at 10% Total—1% Comb. SO_2.

This means that at such times as the amount of relief gas from the digesters is large, much more gas can be absorbed in the raw acid if absorption takes place under pressure. See **Figs. 19 and 20.** In cases where the fluctuations in amount of relief gas from the digesters are so large that the raw acid alone cannot absorb all the gas before the saturation point is reached, it may be advisable to recirculate a certain amount of acid from the reclaiming tank over the lower half of the pressure absorption tower, with the result that a very small amount of SO_2 gas is carried over to the acid system. See **Fig. 21.** Note: instead of having the pressure tower divided into two sections, two separate towers can, of course, be used.

Data Used for Figs. 19, 20 and 21

Sulphur consumption	250 lbs. per ton of pulp
Sulphur loss	8 lbs. per ton of pulp
Raw Acid requirement	10850 lbs. per ton of pulp
Cooking Acid requirement	19200 lbs. per ton of pulp
Temperature of Raw Acid	77° F. (25° C.)
Temperature of Cooking Acid	86° F. (30° C.)
Digester Relief Gases	94% SO_2 (Dry Basis)

Inert gases per ton of pulp in relief gases 350 cubic feet.
Cooking acid saturated 86° F. 94% SO_2 gas 7.90 T—. 1.30% Comb. SO_2 (See Chart XXIX)
Gas flow from digester per ton of pulp = (19200 × 0.079 — 484 = 1033 lbs. SO_2.
Liquor from digester per ton of pulp 8350 lbs.
These are the average conditions shown on Fig. 19.

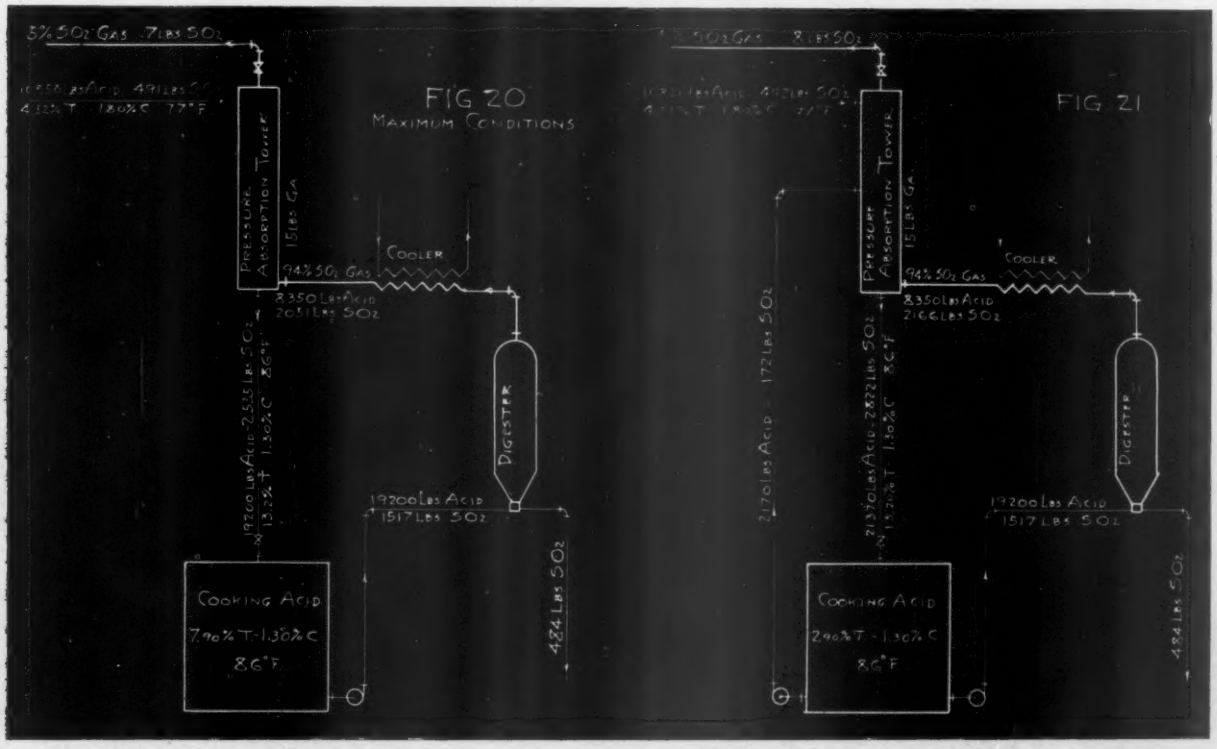
At 15 lbs. Gauge pressure the acid 86° F.—94% SO_2 is saturated at 13.20% T.—1.30% Comb. SO_2. With the variable gas flow from a relieving digester, a condition as per **Fig. 20** is possible. Without pressure on the absorption tower large quantities of SO_2 would be sent to the acid system. It is also possible that during high gas rate relief the liquor relief is small. Under such conditions as well as under high gas rates, the arrangement as per **Fig. 21** is recommended. It is understood, of course, that the cooking acid at the time of high gas rates is slightly lower than the 7.90% T.—1.30% C. so that when mixed with the stronger acid from the pressure tower, the mixture of the two in the tank corresponds to the 7.90% T.—1.30% C. given. Otherwise there will be a flash off of SO_2. **Flow sheet No. 7** shows the acid storage tanks vented to low pressure absorption tower where the vent gases are reabsorbed. In connection with an absorption-stripping system the low pressure absorption tower is necessary.

Another value of the pressure absorption system lies in the fact that by regulating the pressure on the tower, the SO_2 strength of the unabsorbed gases can be changed within certain limits, giving a control of the raw acid combination. For instance, a lower pressure gives a stronger gas return. Thus a stronger raw acid has to be made which automatically gives a higher Comb. SO_2 and vice versa.

3. Gas Holder

The purpose of the gas holder between the pressure absorption tower and the acid system is to otbain a uniform flow of gas to the acid system. The maximum pressure in the gas holder will be the same as in the absorption tower and may be as low as about 1 lb. Thus supplying gas to the acid plant at a constant rate of flow: Reducing volume when the gas flow from the absorption tower is low and storing gas at times when the amount is large.

In this way it should be possible to eliminate all difficulties now encountered in the operation of the acid plant due to fluctuating amounts of overgas from the reclaiming system to the acid plant. In other words, for all practical purposes the acid and reclaiming systems are separate operating units.



Conclusions

The layout as per **Flow Sheet No. 7** has the necessary features incorporated to give perfect control of all phases of acid making.

1. With the Absorption-Stripper System any acid composition wanted can be produced.
2. The strength of the cooking acid can be built up quickly as needed.
3. The reclaiming system is made practically 100% efficient.
4. The gas holder eliminates the difficulty with fluctuating relief gas flow.
5. Normal operation is not upset by pumping of acid to digesters as storage tanks are vented to the absorption tower.
6. For all practical purposes the raw acid and cooking acid departments are separate units.

Paper Mill Men's Club Aids Needy Children

● At the monthly meeting of Paper Mill Men's Club of Southern California, held at Oakmont Country Club, Los Angeles, November 18, it was decided to make a lump-sum gift of money to the Community Chest this year, rather than follow the previous custom of holding a Christmas party for needy children. Wartime food and transportation restrictions were mainly responsible for this decision. Also, it was felt that the Community Chest organization is in position to appropriate the money in such a manner that the youngsters will be as equally benefitted as heretofore. The sum is in excess of $600.

About thirty members were present at the November meeting. The afternoon was given over to golf, with Harry Fields, of Crown Zellerbach Corporation, taking the honors with a score of 87.

Frederick "Ted" Schroeder, of Sealright Pacific, Ltd., exhibited films pertaining to the war effort, and the evening was devoted to cards. Dwight Tudor, Sr., of Fibreboard Products Inc., presided at the meeting.

It was decided to hold the December meeting in a downtown location, yet to be seletced, about December 23.

Heavy Newsprint Cuts In 1944 Appear Certain

● Cuts in newsprint usage of nearly 30 per cent in some of the larger United States newspapers in 1944 have been forecast in recommendations made recently by the new WPB Newspaper Industry Advisory Committee. This committee in mid-November made a recommendation that the newspapers take an average 23 per cent cut in the first quarter of 1944—with reductions ranging from nothing for small papers to 28 per cent for larger ones. There has been much evidence presented showing larger newspapers have not been as hard hit as small ones in previous cuts.

R. A. McDonald, vice president, Crown Zellerbach Corporation, San Francisco, was the only Pacific Coast representative participating in the November sessions of the new advisory committee. The committee met with Harold Boeschenstein, new over-all chief of the Forest Products Bureau, and other WPB officials.

E. L. Kurth, president, Southland Paper Mills, Lufkin, Texas, was unable to attend the first sessions.

Hecht Proposes New Postwar Sample Form

● Here is a postwar plan that would end the past chaotic conditons under which printers and paper users were supplied with all sizes and shapes of sample cabinets or boxes by the manufacturers and distributors.

The proposal is made by V. E. Hecht of San Francisco, vice president of Zellerbach Paper Company. He chose an opportune time for it, as many companies have been forced to discontinue sending out samples during the war and all could make a clean start afterward.

In a letter to several manufacturers and the National Paper Trade Association, Mr. Hecht writes:

"In our postwar planning, we, like other paper merchants, are giving serious consideration to sampling. 'Afterduration' papers, as well as those now available, will unquestionably be different than those of pre-war days, necessitating, as a consequence, a complete new sampling operation. Because of this, the industry is afforded the opportunity of developing a new, modern, streamlined program which should be far superior to the many plans and methods now in use.

"There are some who argue that samples in unit-book or file-folder form, for placement in cabinets, are not necessary at all, but in this, we do not agree. We do feel, however, that large sums can be saved if a less expensive, yet more practical method of sampling were devised than any of those now in use. . . .

"Inasmuch as this is a matter of interest and concern to the whole industry, I am wondering whether you would think well of the idea of having an agency such as the National Paper Trade Association arrange for a meeting or series of meetings of manufacturers, merchants, printers, commercial artists, advertising agents and publishers for a thorough discussion of this subject, believing that from such deliberations, some pratcical and worthwhile plan could be evolved."

Walthers Add Daughter

E. H. Walthers, of the sales promotion staff, Zellerbach Paper Company, San Francisco, was passing the cigars last month, the occasion being the arrival of a brand new baby daughter, Virginia Marie.

Streamlined Christmas

Instead of the big, traditional Christmas party at some San Francisco hotel or club, as in the past, employees of the Zellerbach Paper Company, will have a simple, afternoon Christmas tree party in the company's building on Battery street, on December 23.

Somewhere In Alaska

Second Lt. Irving Alter, nephew of Marcus Alter, president of the Commercial Paper Company, San Francisco, and a former salesman for that house before joining the army, is now stationed somewhere in Alaska.

BMT Sales Meeting Held In San Francisco

● Sales managers and buyers from the main divisions of Blake, Moffitt & Towne convened at company headquarters, San Francisco, October 11-13 for a meeting, presided over by O. W. Mielke, general manager of the company.

A discussion was held on the various lines the company represents and availability of supplies. Carefully considered was the question of war wrapping materials and how each division could help war industries with their packaging problems.

Among those present were: Arthur W. Towne, L. C. Conner, H. P. Westler, and J. A. Gruner, San Francisco; R. L. Simpson, R. R. Whiteman, R. K. Erlandson, and W. I. Winn, Los Angeles; Lynn Oviatt, San Diego, Calif.; A. Z. Sherrig, and P. C. MacDonald, Portland, Ore.; F. A. Carson, Seattle; L. V. Hall, Tacoma, Wash., and G. F. H. Taylor, Spokane, Wash.

Following the business sessions the group dined together at the Clift Hotel.

300 Invited to Overseas Powell River Reunion

● The Powell River Company again is assisting in sponsoring an overseas reunion for Powell River men and women in the armed services.

The place will be the Beaver Club, British Columbia House, London, and the date, Sunday, January 23, 1944.

Two years ago, when the first reunion was staged in London, a sizeable crowd turned out for an unusual get-together and entertainment paid for by the Powell River Company and the folks back home.

This time 300 invitations have been sent out. Nearly all of these went to Powell River men and women stationed in the British Isles but some went to a smaller number in the Mediterranean area.

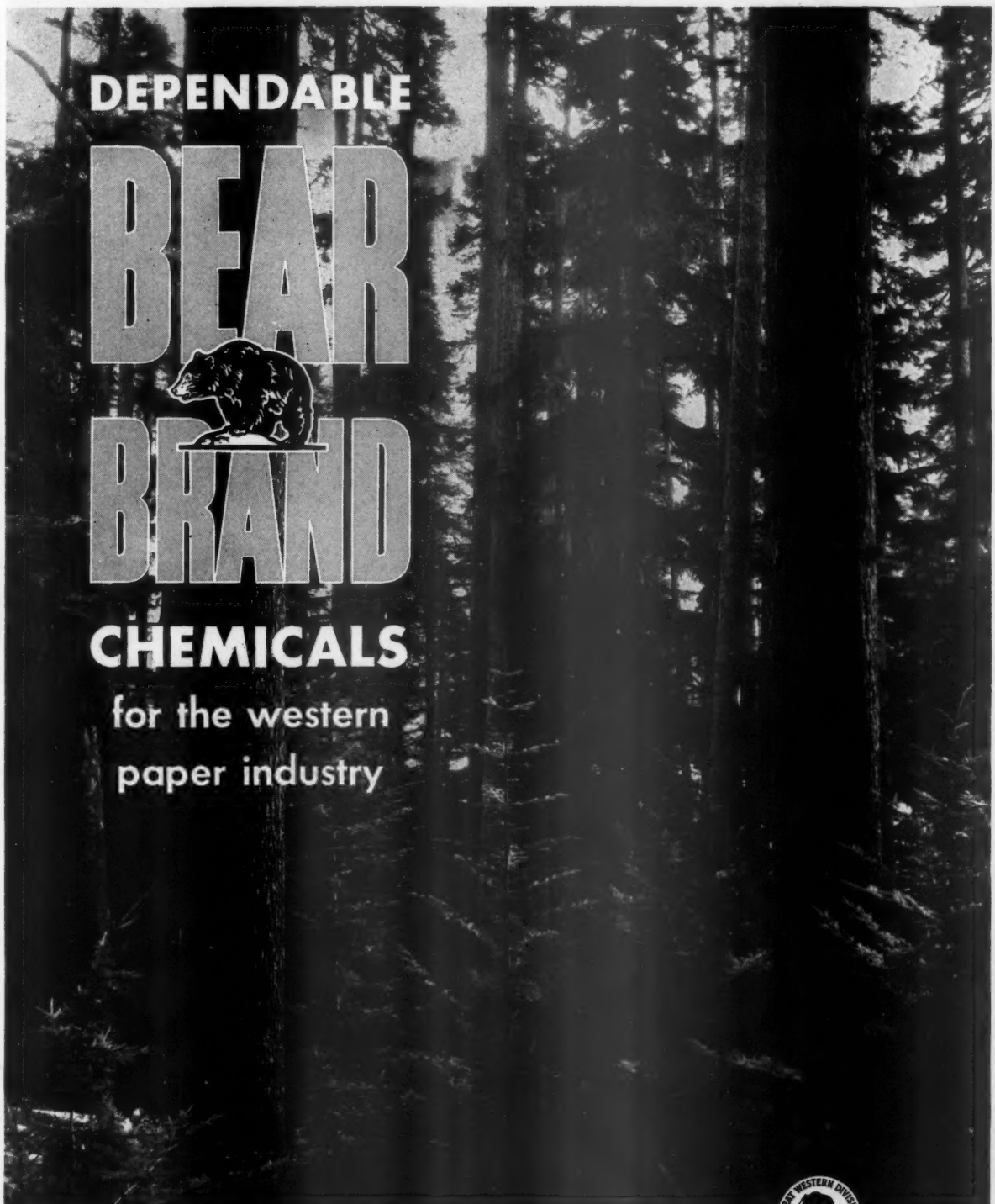
The invitations, sent out in the monthly mill news letter edited by J. A. Lundie, and signed by D. A. Evans, resident manager of the mill, said:

"If any of the gang in the 'Med' or in Africa have leave or a change of address coming up, we expect you at the Beaver Club on the 23rd."

The Powell River Company is doubling the amount of funds raised for the event at a recent Canadian Legion dance in Powell River.

Dyestuffs Order

The War Production Board has issued an amendment to Order M-103 whereby mills may buy and accept delivery, during the fourth quarter of 1943, of 17½% of value of class C and D dyestuffs of amounts purchased from all sources in 1941, plus $250. This increases the quarterly allowance from 15% to 17½%, plus an additional $250.00, for practically all paper mill colors under allocation.



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• SULPHUR DIOXIDE • ZINC HYDROSULPHITE
• DOWICIDES: Industrial Germicides and Fungicides

For outstanding achievement in the production of war materials.

GREAT WESTERN DIVISION, THE DOW CHEMICAL COMPANY
Seattle SAN FRANCISCO, CALIFORNIA Los Angeles

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DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

Electronics in the Paper Industry

By JOHN FISKE*

• The centuries which separate production of papyrus by the Egyptians from the rush of newsprint spinning off the machines of today are marked by advances in techniques and tools. It is significant that electronics—one of the newest of industries—should invade papermaking, art of the ancients, for the tempo of all war production depends largely upon paper in its many forms and types.

As manufacturers strive for increased output and more uniform products, the industry is alert to the newer methods of regulation and control. In the field of regulation, electronics offer two qualities that cannot be approached by any other methods—extreme sensitivity and quick response. For these merits, electronic controls are applied in the paper industry processes of manufacture, conversion and utilization.

The accompanying illustrations show what can be accomplished by the use of

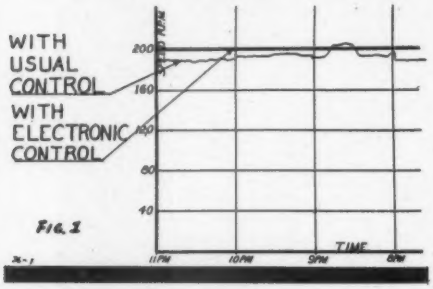


FIG. 1

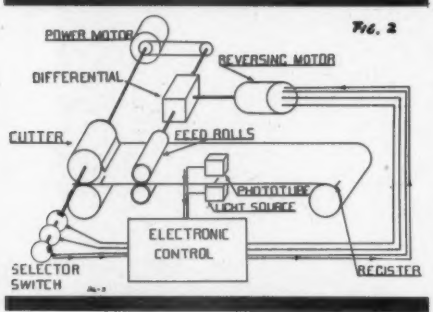


FIG. 2

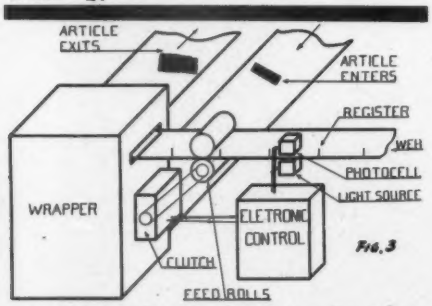


FIG. 3

FIG. 1—Comparison of speed variation between electronic and usual controls.

FIG. 2—Electronic control application to a conversion problem.

FIG. 3—Electronic application in the packaging industry.

*Electronics Specialist, Westinghouse Electric and Manufacturing Company, Los Angeles, Calif. He made a talk on this subject at the Papermakers & Associates of Southern California meeting October 21.

JOHN FISKE, Electronic Control Expert, Westinghouse Electric & Manufacturing Company, Los Angeles: "Art of papermaking is becoming a product of electronics."

electronic control for these processes. In the process of manufacture it is essential that accurate speed control of either the Fourdrinier or Cylinder machines be attained in order to assure uniform thickness of the product. Among the various drives available, perhaps the best from the standpoint of speed regulation is the electric, single motor and sectional motor drives equipped with electronic speed regulations. The sectional electric drive has proven so successful that it is fast becoming standard on new applications. To either of these electric drives electronic voltage regulators are applicable with results as indicated in Figure I.

Control In Paper Conversion

• Figure II shows electronic control application to the problem of paper conversion. Modern packaging methods employe the use of a printed design on each wrapper. It is desirable from the standpoint of handling efficiency to retain the paper in the form of a roll as long as possible. It is found to be less expensive to print a continuous roll than individual sheets. The problem of how to cut the web into separate sheets with the printing correctly centered has not been successfully solved without the use of some means of automatically positioning the web at all times. Errors due to mechanical play and wear of the machine, and to the differences of stretch of various papers under different conditions of humidity and temperature, make it impossible to predetermine the amount of error. It is, therefore, necessary to correct it when the deviation occurs, not before.

A register regulator that operates from a register mark printed on the paper can control the position of the web plus or minus 1/32 of an inch while it moves at a speed of more than 1000 feet per minute. Figure II illustrates the main part of the register regulator. As the paper travels from the roll to the cutter, printed register marks pass beneath the cell, and an electrical impulse is sent to the electronic control. This tells this controller where the paper is. Impulses are then sent from the rotary selector switch attached to the cutter to indicate where the paper should be. Electronic controls then compare the impulses from the two separate sources and set in operation the mechanism to apply a correction to the feed roll.

Winding and slitter regulators are similar applications for controlling the position of the web at right angles to its travel. In some instances the edge of the paper itself may be used as the register mark for rewinding. For slitter operation it is sometimes necessary to print a register mark running lengthwise. An application of this type is shown in the accompanying photograph taken in a western label plant. The Westinghouse electronic control panel which transmits impulse through the Thyatron of "grid-glow" tube is shown being adjusted by the operator. Impulses are delivered to this panel by the electronic "eye" fixed directly above the facing roll to scan the register marks.

Figure III illustrates the method of electronic application for the utilization of packaging materials. Wrapper regulators as indicated function when the register mark passes beneath the photo-electric cell. The resulting impulse releases the clutch on the feeder rolls and initiates a sequence of operations that allows the web to be cut and the product wrapped. As the packaged article leaves the machine, it trips a limit switch which starts the process for the next unit. This method of wrapping control insures correct positioning of the wrapper and is reflected in terms of customer satisfaction and increased production.

Such controls as have been described are not new. They have progressed from development to wide usage during the last ten years. Their future adaptation is assured by the results shown by their past records. Such applications are not necessarily the ones that promise continued expansion of electronics in the paper industry. As engineers determine the possibilities of this science many new developments will be added to the production of machinery of the paper industry.

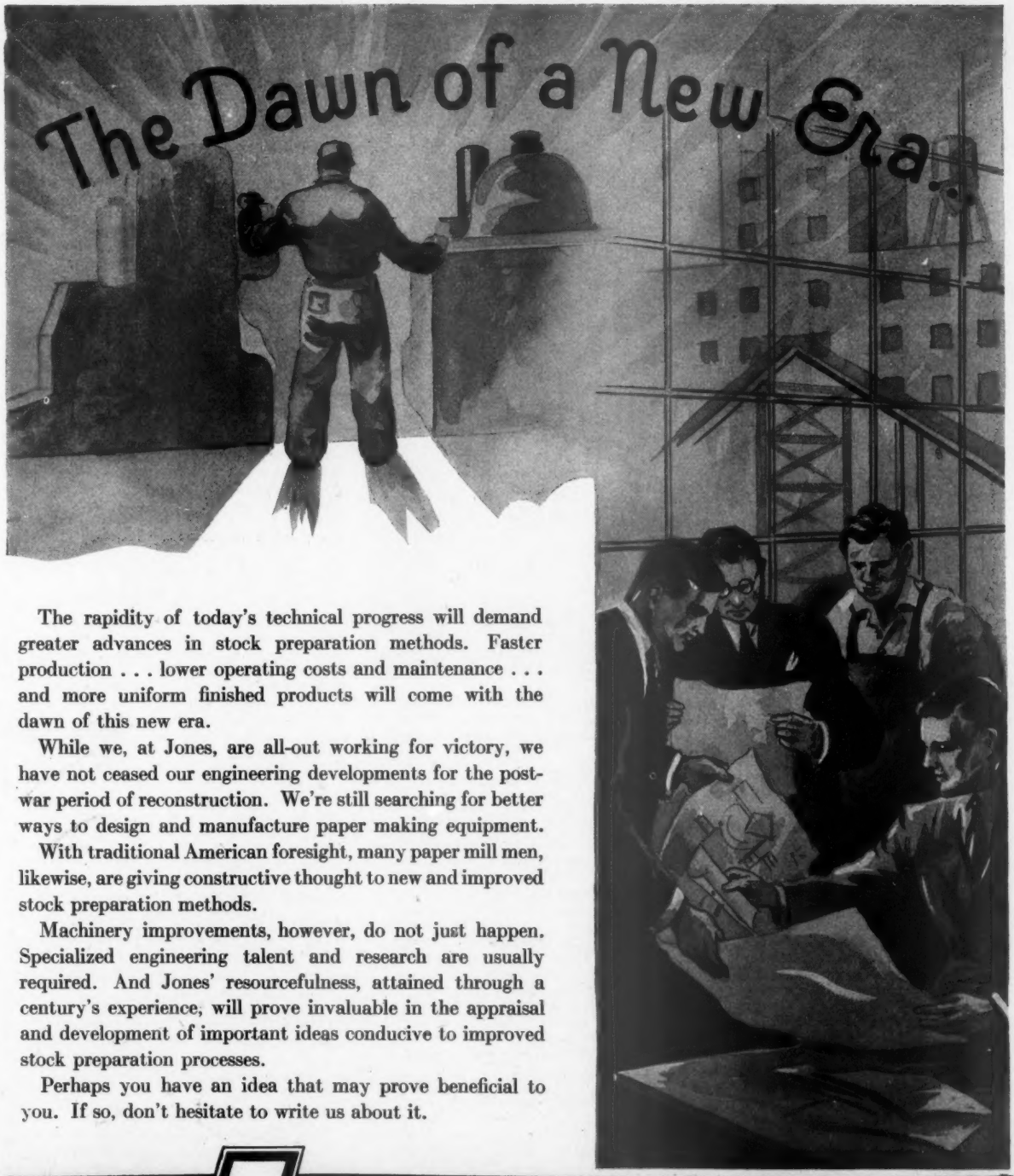
Offer Flexibility

• New electronic motor controls now offer the flexibility of direct current drive, and operate off existing alternating current supply. The merits of such motor controls are:

a. Extremely wide, stepless speed range, present in any value in either forward or reverse.
b. Automatic speed regulation.
c. Current limit acceleration which insures smooth starting.

In application, these motor controls may be used to regulate the drive to wind a stack reel, where accurate speed control is necessary to prevent breaking the paper, and give the wide speed range needed for different jobs. They can also be applied to the drives on shaker heads for Fourdrinier machines, for the purpose of providing a constant frequency mechanism which may be changed to any value within a 20 to 1 frequency range by simply adjusting a potentiometer.

So far we have mentioned only devices for regulation and control. One device now in its infancy, promises to be of interest on special applications in the post-war world. This is the di-electric heater, a device that is, in effect, a radio transmitter without a microphone, which



The rapidity of today's technical progress will demand greater advances in stock preparation methods. Faster production . . . lower operating costs and maintenance . . . and more uniform finished products will come with the dawn of this new era.

While we, at Jones, are all-out working for victory, we have not ceased our engineering developments for the post-war period of reconstruction. We're still searching for better ways to design and manufacture paper making equipment.

With traditional American foresight, many paper mill men, likewise, are giving constructive thought to new and improved stock preparation methods.

Machinery improvements, however, do not just happen. Specialized engineering talent and research are usually required. And Jones' resourcefulness, attained through a century's experience, will prove invaluable in the appraisal and development of important ideas conducive to improved stock preparation processes.

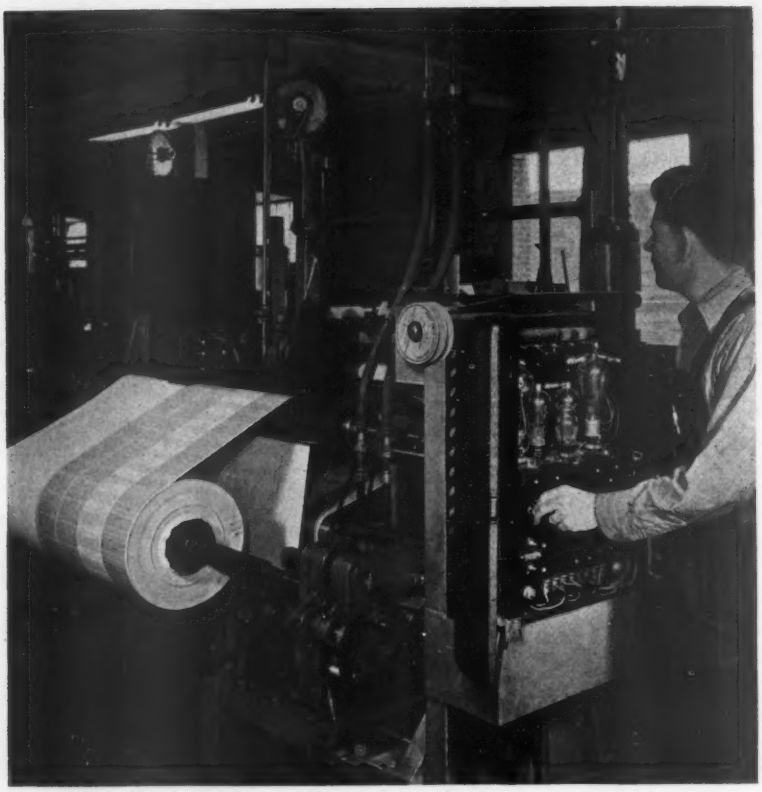
Perhaps you have an idea that may prove beneficial to you. If so, don't hesitate to write us about it.

Jones

GEARED FOR WAR PRODUCTION

E.D. JONES & SONS COMPANY-PITTSFIELD, MASS.

Builders of Quality Machinery for Paper Mills



ELECTRONICS AT WORK in a Western Label Plant showing a photoelectric cell regulating the feed of a roll of printed labels passing through a slitting operation. The operator is adjusting the potentiometer at the control station.

supplies electrical energy to two metallic plates instead of radiating it from an antenna. Material to be dried is placed between these two plates, and the energy from the high frequency radio waves is converted into heat within the material. For thick materials di-electric heating is greatly superior to contact or surface heating since the temperature is raised uniformly throughout the material and also very quickly. It will attain importance where speed and uniformity of the product are prime factors.

As new applications of electronics are perfected, the industry can expect superior methods of regulation. Resulting designs should tend to further improve and speed the checking of stock consistency, measuring of moisture content of the finished product, control of hydrogen and ion concentrations, and may make automatic the control of web thickness a reality.

As a superior method of regulations, electronic methods have proven their worth by lowering costs, increasing production and improvivng quality. This will be considered in the modernization of old equipment and installation of new. The period of trial is over and the time of application is at hand.

Tribute to Men and Women In Services

The Christmas "Informant," published by the Zellerbach Paper Company, San Francisco, features photos and biographical sketches of several of the men and women from each of the company's branches, who are now in the service.

New Quiz Booklet About Forest Industries

● The most frequently asked questions about the forests and the forest industries with their answers, tersely stated, have been compiled in a booklet, **Paul Bunyan's Quiz,** just published by American Forest Products, Industries, Inc.

The purpose of the book is to arm those whose livelihood stems, directly or indirectly, from the forests with correct information to meet the many inquiries born of a recrudescence of public interest in our greatest, renewable, natural resource.

Fully illustrated, the 52-page booklet contains 225 questions and answers. You may obtain the booklet upon request to American Forest Products Industries, Inc., 1319 18th Street Northwest, Washington (6), D. C. Mention this notice seeing the offer of the booklet in PACIFIC PULP & PAPER INDUSTRY.

Miss Savale Marries

Miss Jean Savale, daughter of V. N. "Vic" Savale, Pacific Coast representative, Geo. LaMonte & Sons, and Mrs LaMonte, was married November 12 to Lt. Richard DeKay, USMC. For the time being the newlyweds will make their home in Georgia.

Millers Celebrate

George E. Miller, office manager of the Vancouver, Wash., plant of Columbia River Paper Mills, is passing out cigars as the father of a son, born December 4, in Portland, Ore. Mother and son are reported doing nicely.

Gunnar Jenssen Dies in California

● Gunnar Darre Jenssen, inventor of the two-tower acid system used in the sulphite pulp process, died in Beverly Hills, Calif., August 11. The two-tower acid system first was installed by the J. & J. Rogers Company at Ausable Forks, N. Y., in 1916. Previous to this Mr. Jenssen had installed a four-tower system in the Hammermill Paper Company's mill in 1914.

He was born in Trondhjem, Norway, June 17, 1880, and came to the United States in 1912. His early experience wav in Scandinavian and German mills. He was an authority in pyrites burning. Following a period of working in American mills as a consultant, he organized the G. D. Jenssen Company which he headed until his retirement in 1924.

He is survived by his wife and daughter who live in Beverly Hills, Calif., and his brother, J. D. Jenssen of New York City.

The brother has carried on the business since the retirement of G. D. Jenssen. The company's western manager is A. H. Lundberg of Seattle, a position he has held since 1924. Almost every new sulphite mill of recent years has installed the Jenssen two-tower acid system.

Powell River's Shops Complete Much War Work

Here's the almost up-to-date score card on the war work being done in the well equipped machine shops of Powell River Paper Company, Powell River, B. C. (work machined and completed):

50 lubricators for corvettes.
18 acetylene buggies for shipyards.
3,500 stirrup nozzles for Air Raid Precautions operations.
4,700 hydrant parts, principally for air fields.
200 three-inch globe valves.
300 five-inch valve seat rings and nuts.
500 14-inch valve seat rings and nuts.
45 3½-inch quadruple nuts.
60 steering engine bases.
70 steering engine sub bases.
120 connecting rods for steering engines.
300 5x6-inch engine parts.
2,700 steering gear parts.
65 winch bull gears.
26 ratchet windlasses.
250 herringbone gears for cargo winches (weight about 1,000 lbs.).

Several women have been trained and are working in the shops. Directors of the company have energetically sought more foundry work but through no fault of their own it has fallen off slightly.

Manpower Developments

The laying off of about 1,000 men in construction work on coastal defenses recently was expected to ease the critical labor situation for Olympic peninsula mills. Their manpower problems, however, are still serious. The Crown Zellerbach mill at Port Townsend has just about been able to hold its own in recent months and has about 50 women employed among its about 430 employes.

Vic Gault Heads C. of C.

● On December 1, Victor Gault, personnel supervisor of the Camas Crown Willamette division of Crown Zellerbach Corporation, took over his new duties as president of the Camas Chamber of Commerce. He was elected in early November.

Rediscover the Rainbow

By DR. WILLARD H. DOW

THIS is a world of natural forces controlled by immutable laws. That we all know. With these forces and their laws we must live and move and have our being. That we all know. But how many of us realize that the future of all of us and the hope of mankind rests in our ability to uncover these forces and to use them according to their laws? How many of us realize that man is puny and that the things and the governments he fashions can exist only by the aid of the natural forces and laws? The fool speaks of conquering nature. The wise man implores the aid of nature.

The ancients were right in holding that the rainbows held a promise. They were wrong about the promise being in a pot that one could lift and carry away. The rainbow, as scientists were to discover, is a revelation of the spectrum and an invitation to man to find out how to use it to investigate nature's laws and to unlock treasures so vast that they could not be counted in pots of gold; for no one can evaluate in money what the spectroscope has done for science and humanity. . . .

We are in the midst of a holocaust of destruction in which apparently nothing is sacred or inviolate. The war, if it demonstrates anything, demonstrates that mankind as a whole is morally and politically unfit to apply the knowledge which science has placed at its command. Indeed the thin veneer of civilization is easily rubbed off. Are we not today applying against mankind nearly all the forces and laws of nature which science has uncovered for the making of a better and happier living? . . .

NO "STUFFED SHIRT" SPEECH

A great many speeches were made in a great many places in 1943. Most of them were dead and forgotten before those in the audience got home to their bicarbonate of soda.

But there was one speech by an industrialist made in 1943 that was outstanding in its expression of fundamental truths that are too often forgotten today.

Selected by Columbia University as the Chandler lecturer and medalist of 1943, Dr. Willard H Dow, 46-year-old president of The Dow Chemical Company, made a talk at that institution on May 20 entitled "Rediscover the Rainbow."

The principal theme was caution against interference with the laws of nature—either by business men or by bureaucrats.

Space does not permit reproducing all of Dr. Dow's speech. But here are some important parts of it.

The first requirement of any plan is to test it carefully to determine if it conforms with natural laws. For planning without this exact knowledge, or planning without any knowledge, may easily be planning against nature. The Tower of Babel, it may be recalled, was part of a plan to penertate to Heaven—although I am not informed as to what the planners were going to do when they got there. It was magnifiicently conceived but it ended in rubble and confusion. Is it not presumptuous to begin with a conception that this world is without plan or order and that what it principally needs is one more man-made document? . . .

DR. WILLARD H. DOW, PRESIDENT OF THE DOW CHEMICAL COMPANY, of Midland, Mich.: "The first requirement of any plan is to test it carefully to determine if it conforms with natural laws."

Scientists Are Religious

● We of today are so much better informed than our fellows of generations ago that we have enough perspective to recognize our insignificance in the divine order. I live in a town where there are probably more doctors of philosophy to the acre than in any other part of the country. These doctors are, without exception, religious men; but they are, again almost without exception, non-churchgoers. . . .

I resent the implication that the idealism which lightly skips over exchange values is entitled to the respect of men of good will. Everything that is not self-supporting of itself must live as a parasite on the values created by others. That is a law of nature. It is a truly extraordinary conception that a parasite economy in which one part of the people are directed to live upon another part of the people is a secure economy. The parasite can have no security beyond that of the organism on which it lives. If it sucks the life out of that organism, both go down. Balanced production requires that everyone work and no single group become a parasite on another. Production is naturally controlled if permitted to function by natural processes. For instance, inflation of the individual's credit in order to aid greater production is no better than any other inflation and in the end destroys production. In the final analysis, our ability to buy is equal only to our ability to produce.

No acts of peoples, nor will of empires, can change these laws. They are natural laws. When a principle is once established, when it becomes accepted as a law of nature, no one attempts to oppose it. But, as the principle becomes commonplace, many soon forget the costs paid in learning its significance and some group pushes blindly on, violating some other principle, and wonders why its plans fail!

Role of Science

● The idea of one scientific development being a tool which helps in another development is clearly understood and appreciated by those with scientific experience and but slightly understood by others. The radio is probably considered by the public as one of the most necessary means of entertainment and communi-

BLEACHED AND UNBLEACHED

SULPHITE PULP

Produced by the

PULP DIVISION · WEYERHAEUSER TIMBER CO.

is manufactured out of

WEST COAST HEMLOCK

Harvested in Weyerhaeuser logging operations from company-owned timberlands

cation but the whole physical science of radio development is one of the most vitally necessary tools in all sorts of commercial operation. It permits automatic control where human hands cannot reach. The electron microscope in turn permits magnification that lenses cannot produce. It would be an unwise phophet who would attempt to define the probable limitation of electronics, or what it will do in aiding all science to further understanding and benefit.

The extraction of bromine from ocean water was not a commercial economic process until comparatively a few years ago; and that was only because in earlier days we did not have the equipment with which to make possible the careful and exacting acidity control of the ocean water. For the first time in world experience we found how to handle enormous volumes of ocean water in continuous flow and at the same time control the acidity within narrow limits. That was the real key that opened commercially in 1934 the first lock of the vast resources of the ocean. Today thousands of tons of bromine are extracted annually from the ocean to the tremendous advantage of the Allies in aviation alone. What body politic a score of years ago could have directed or even wisely suggested the solution to such a problem? What "directive" could have substituted for unfettered imagination, the desire of the human being to show self-expression and to carry on against all kinds of obstacles? . . .

I mentioned "competition" between synthetic and natural rubber and indigo. That is the way we talk about offering a selection between a man-made uniform product and a nature-grown uncontrolled product. But let me suggest to you that there is no fundamental competition between substances; the competition is between the skilled labor of the factory and the collie labor of the plantation. May it not be a law of nature that the product which may be turned out by the well paid, well fed, well housed worker must displace the product which requires men to work in the manner and at the wages of a beast of burden? . . .

Nature's way is simple, plain and direct, but we sometimes follow a devious path before we reach understanding. Those nations who follow nature's laws most closely are bound to become supreme—supreme in their modesty, supreme in their honesty and humble before nature's altar. Again I ask you, consider the rainbow."

Local Food Too High; Mill Starts Cafeteria

● A. H. Florence, manager of Powell Stores, Ltd., subsidiary of the Powell River Company, Ltd., will supervise a new cafeteria, for which tenders are being called by Architect C. B. K. Van Norman.

Cost is estimated at between $20,000 and $25,000, the minimum seating capacity being 150 persons. Hot meals and lunches will be available at cost, with financial statements of operating open to a joint committee of local unions.

The plan was worked out by a management - union committee composed of Frank Flett, P. R. Company employment supervisor, and A. A. Humphrey and E. Bertram, representing the Papermakers' and Pulp & Sulphite Unions. It came as a result of complaints against cost and quality of meals obtainable through ordinary local sources.

RALPH M. HOFFMAN (left), heretofore Vice President in general charge of sales of the parent LINK-BELT COMPANY, has been elected to succeed B. A. GAYMAN (right) as President of the LINK-BELT COMPANY PACIFIC DIVISION with headquarters at San Francisco.

Mr. GAYMAN, retiring from active service at the end of the year, headed the coast division since 1923 and has been in service of Link-Belt since 1897. He continues as a Director of the parent company.

Mr. HOFFMAN, University of Minnesota graduate in 1911, held Pacific Coast positions with Link-Belt in Seattle and San Francisco between 1923 and 1939.

Bellingham Mill Runs At Two-Thirds Capacity

● Operations of the Puget Sound Pulp & Timber Company, Bellingham, Wash., producers of unbleached sulphite, in the third quarter of 1943 were maintained at approximately the same rate as in the immediately preceding quarter, and at about two-thirds of the capacity rate recorded in the third quarter of 1942.

Pulp production of 26,986 tons in the third quarter of 1943 compared with 25,698 tons in the second quarter, and with 41,638 tons in the third quarter of 1942.

Operations at less than plant capacity have now been in effect for one year. Curtailment began in October, 1942, as a government-directed endeavor to share manpower with other essential industries. At about the same time a log shortage developed, the effects of which are still limiting pulp output.

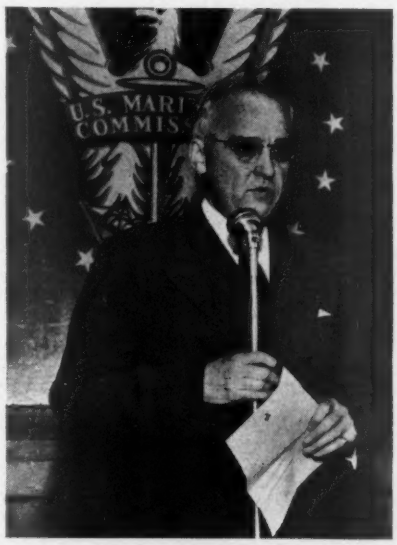
Coast Industry Has Lone Kraft Committee Member

● A Kraft Paper Industry Advisory Committee for the War Production Board has been formed with Willard J. Dixon, St. Regis Paper Company, New York, as the only member representing a company with Pacific Coast operations. St. Regis operates bag plants at Vancouver, B. C., Seattle, Emeryville, Calif., and Los Angeles, and has a kraft mill at Tacoma, Wash., now closed because of the log shortage.

Rex. W. Hovey, chief of the newly formed WPB Paper Division of the Forest Products Bureau, is to be presiding officer.

No Lost-Time Accidents

The Everett, Wash., mill, Pulp Division, Weyerhaeuser Timber Company, went through its third month of the year with no lost-time accidents in October, according to Evan Wood, personnel and safety supervisor. The record is regarded as a good one for the 280 employes, particularly because of unusual turnover in employment and large proportion of inexperienced workers in these times.



A. M. MEARS, SECRETARY-TREASURER OF HESSE - ERSTED IRON WORKS, Inc., of Portland, Ore., manufacturers of marine, sawmill and pulp and paper machinery, praising employes of the firm in the principal address at ceremonies on September 27, when a second gold star was added to their Maritime M flag.

Westinghouse Magazine Printed On Bible Paper

● More than 900 Westinghouse employes serving overseas with the armed forces are now receiving a special edition of the Westinghouse Magazine, employe publication, printed on Bible paper.

First planned when the War Department ruled that employe publications weighing over two ounces could not be sent overseas, savings in postage and reduced requirements of shipping space made it feasible to use this lightweight stock even after the weight limitation order was amended to allow eight ounces per copy.

A Tribute to D. B. Davies, Pioneer of Coast Industry

● An intimate story of the life of the late David B. Davies of Shelton, Wash., well known pioneer of the Pacific Coast pulp and paper industry, was published after his passing in his home town newspaper.

The article, appearing in the Mason County Journal in Shelton, paid high tribute to the character and accomplishments of Mr. Davies, who was production manager for Rayonier Incorporated's Washington state mills. He died June 12 in Seattle at the age of 66 (reported on page 21, June, 1943 issue of PACIFIC PULP & PAPER INDUSTRY.) Parts of the Journal's account follow:

"His (Welsh) forebears for many generations had been engaged in coal mining, and in 1887 his father and family came to the United States and his father became superintendent of a mine in Pennsylvania.

Worked in Mines

"At the age of 11, young David began his 10-hour shifts underground but continued in night school, much to the amusement of his associates, who considered book education as foolishness.

"During strike periods he attended both day and night schools and at times he went without his meals in order to buy books; food was relatively unimportant but books and the knowledge they contained were essential.

"When about 18 years old he left the mines and went to Johnsonberg, Penn., as secretary to Richard Stutz, president of the New York and Pennsylvania Paper Co. Mr. Stutz quickly recognizing the young man's active and inquiring mind, absorbing interests, and potential executive and administrative abilities, told him to observe the operations of the plant.

"The young secretary not only performed his duties in the office, but became so familiar with the operating part of the business that in a few years he was made superintendent of the plant.

Married in 1901

"On June 22, 1901, he and Maud June Henry of Brookville, Penn., were married.

"In 1905 he went to Miami Valley, Ohio, as superintendent of the Friend Paper Company. His reputation as a scientist, organizer, and executive traveled westward and" in the years that followed the article told how he moved westward to Michigan, then Wisconsin and finally, to Shelton in 1927. It continued:

"His observing eye, his inquiring mind and his love of humanity gained through his years of varied experiences, pre-eminently qualified him for this position (as Rayonier's manager). He was naturally a scientist, he read widely, experimented originally, classified his facts carefully and arrived at his scientific conclusions. Due to his experiments and those of his associates they conclusively proved that pulp from the Pacific Northwest forests of this country was a better and more adaptable product for the rayon manufacturing industry than the foreign products heretofore used, contrary to the accepted theory of American and foreign pulp makers. This scientific discovery ended the asserted superiority of the forests of Newfoundland, Canada and the Scandinavian countries, millions of dollars therefore going to those countries for pulp and wood were thereafter spent in the Pacific Northwest and a new and great industry with its necessary mills, payrolls and attending developments was commenced and successfully carried on, thus millions of people have directly or indirectly profited from their studies.

"He was the co-author of various text books on the pulp and paper industry, contributed frequent articles to trade journals and was recognized as one of the outstanding authorities on the pulp and paper industry in the United States.

"As he approached scientific problems with an open, inquiring mind, so he approached human problems and human relations with an open, inquiring, sympathetic and understanding mind. His kindness, his sympathy, his understanding, his sense of humor, his patience, his humility, his interest in his associates, his employees, his community, and his country, and his good common sense made him a wise administrator, a just executive and a friend whose ear was never closed to the most trifling problem of his humblest employee as well as one whose opinion was most higly valued and closely followed on the most important questions.

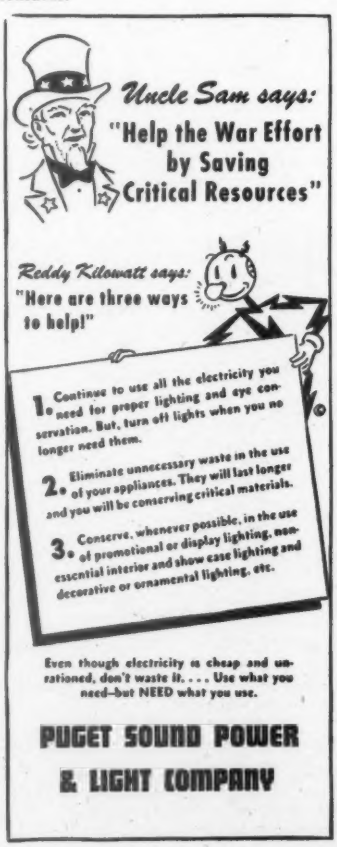
His pleasures and social life were very simple. His greatest pleasures were the hours of relaxation spent with his wife, Maud, daughter Peg, son-in-law Merritt and grandson David. A game of golf, or cards, a drive through the woods, the snow on the mountains, the colors of the evening sunset, compaionship of his family, a chat with his friends, good music, or a good show, these were the simple relaxations in a busy life.

"Shelton has lost another of its most valued and most loved citizens whose place cannot be filled. From this community has gone another of its rare individuals with an understanding heart, and from the field of science one has gone who has added to the sum total of human knowledge and thereby increased human happiness."

Andrews Wins Prizes In "Mum" Show

● Friends of I. H. "Harry" Andrews, control superintendent, Powell River Company, will be interested in knowing that he carried off some fourteen prizes in a recent community chrysanthemum show held at Powell River, B. C.

This was the second year of the Powell River "mum" show and there were 450 entries. Experts from Vancouver judged the show and they reported that Powell River residents have shown an unusual skill in training "cascades" of chrysanthemums.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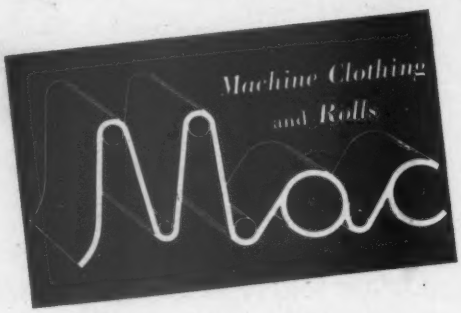

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